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# Relativistic many-body Møller–Plesset perturbation theory calculations of the energy levels and transition rates in Na-like to P-like Xe ions

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## Abstract

Relativistic multireference many-body perturbation theory calculations have been performed for  $\text{Xe}^{43+}$  to  $\text{Xe}^{39+}$  ions, resulting in energy levels, electric dipole transition rates, and level lifetimes. The second-order many-body perturbation theory calculation of energy levels included mass shifts, the frequency-dependent Breit correction, and Lamb shifts. The calculated transition energies and E1 transition rates are used to present synthetic spectra in the extreme ultraviolet range for some of the Xe ions.

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## 1. Introduction

In the last few years, the need for accurate spectroscopic data for highly charged ions has been increasing because more energetic light sources (laser produced plasmas, foil-excited ion beams, tokamak fusion devices, and electron beam ion traps) have facilitated access of the relevant energy range. Discussions of the status of data for highly charged multi-electron ions of Xe and Au, for example, as well as references to experimental and theoretical work on these ions, can be found in Refs. [1–7]. While reliable experimental and theoretical data are available for most of the low- $Z$  ions, this is decidedly not the case for the high- $Z$  ( $Z \geq 42$ ) ions. Isoelectronic trend analysis is a very effective tool for obtaining accurate estimates by interpolation. However, extrapolated estimates are accurate only for a few neighboring ions, and the process fails completely for any longer-range extrapolation. It is obvious that extremely accurate theoretical data for an element in the middle of the periodic sequence, for example Xe ( $Z = 54$ ), could provide a cornerstone and reference for the future isoelectronic analysis of spectra of highly ionized ions.

Most of the previous theoretical studies of multi-valence electron systems were carried out using the multiconfiguration Dirac–Fock–Breit (MCDFB) method, with varying degrees of success. Moreover, only very few highly correlated calculations have been performed for systems with more than two valence electrons. We have developed and implemented into an atomic structure code package a version of the relativistic multireference Møller–Plesset (MR-MP) many-body theory that provides very accurate transition energies and transition rates in highly charged ions [8–10]. Here we have applied this package to the calculation of transition energies and transition rates for a range of xenon ions with an open  $n = 3$  shell (Na-like to P-like ions).

## 2. Theory

Our calculational approach has been explained in sufficient detail elsewhere [8–10] so that we can keep the present description brief. The effective  $N$ -electron Hamiltonian (in atomic units, a.u.) for the development of our relativistic MR-MP algorithm is taken to be the relativistic “no-pair” Dirac–Coulomb–Breit (DCB) Hamiltonian

$$H_{\text{DCB}}^+ = \sum_i h_D(i) + \mathcal{L}_+ \left( \sum_{i>j} \frac{1}{r_{ij}} + B_{ij}(0) \right) \mathcal{L}_+ \quad (1)$$

with

$$B_{ij}(0) = -\frac{1}{2} \left[ \boldsymbol{\alpha}_i \cdot \boldsymbol{\alpha}_j + (\boldsymbol{\alpha}_i \cdot \mathbf{r}_{ij})(\boldsymbol{\alpha}_j \cdot \mathbf{r}_{ij})/r_{ij}^2 \right] / r_{ij}. \quad (2)$$

Here  $h_D(i)$  is the Dirac one-electron Hamiltonian.  $\mathcal{L}_+$  is the projection operator onto the positive-energy space and it takes into account the field-theoretic condition that the negative-energy states are filled. To account for strong configuration mixing among the highly excited levels, the multireference configuration interaction (MR-CI) method [10] is introduced.  $N$ -electron eigenfunctions of the no-pair DCB Hamiltonian are approximated by a linear combination of  $M$  configuration-state functions (CSFs),  $\{\Phi_I(\gamma_I \mathcal{J}\pi)\}$ ,  $I = 1, 2, \dots, M\}$ , constructed from the one-particle positive-energy spinors. The one-particle spinors are solutions of the matrix MCDFB self-consistent field (SCF) equation ( $V^N$  potential). The MR-CI wavefunction  $\psi_K^{\text{MC}}(\gamma_K \mathcal{J}\pi)$  is an eigenfunction of the angular momentum and parity operators with total angular momentum  $\mathcal{J}$  and parity  $\pi$ .  $\gamma$  denotes a set of quantum numbers other than  $\mathcal{J}$  and  $\pi$  necessary to specify the state uniquely, that is,

$$\psi_K^{\text{CI}}(\gamma_K \mathcal{J}\pi) = \sum_I^M C_{IK} \Phi_I(\gamma_I \mathcal{J}\pi). \quad (3)$$

The total DCB energy of the general CI state  $|\psi_K^{\text{CI}}(\gamma_K \mathcal{J}\pi)\rangle$  can be expressed as

$$E_K^{\text{CI}} = \langle \psi_K^{\text{CI}} | H_{\text{DCB}}^+ | \psi_K^{\text{CI}} \rangle = \sum_{I,J=1}^M C_{IK} C_{JK} \langle \Phi_I | H_{\text{DCB}}^+ | \Phi_J \rangle. \quad (4)$$

Here it is assumed that  $\psi_K^{\text{CI}}(\gamma_K \mathcal{J}\pi)$  and  $\Phi_I(\gamma_I \mathcal{J}\pi)$  are normalized. The frequency-dependent Breit interaction, normal mass shift, and specific mass shift are evaluated as the first-order corrections using the eigenvectors  $\{\psi_K^{\text{CI}}(\gamma_K \mathcal{J}\pi)\}$  from the MR-CI method [10]. The frequency dependence of the Breit interaction is evaluated in the Coulomb gauge. The no-pair DCB Hamiltonian  $H_{\text{DCB}}^+ = H_0 + V$  is decomposed into two parts, the unperturbed Hamiltonian  $H_0$  and the perturbation  $V$ , following Møller and Plesset [11],

$$H_0 = \sum_I |\Phi_I(\gamma_I \mathcal{J}\pi)\rangle E_I^{\text{CSF}} \langle \Phi_I(\gamma_I \mathcal{J}\pi)|, \quad (5)$$

so that

$$H_0 |\Phi_I(\gamma_I \mathcal{J}\pi)\rangle = E_I^{\text{CSF}} |\Phi_I(\gamma_I \mathcal{J}\pi)\rangle. \quad (6)$$

$E_I^{\text{CSF}}$  is a sum of the products of one-electron energies  $\varepsilon_q^+$  and an occupation number  $n_{n_q \kappa_q}[I]$  of the  $\kappa_q$ -symmetry shell in the CSF  $\Phi_I^{(+)}(\gamma_I \mathcal{J}\pi)$ ;

$$E_I^{\text{CSF}} = \sum_q \varepsilon_q^+ n_{n_q \kappa_q}[I]. \quad (7)$$

Application of Rayleigh–Schrödinger perturbation theory provides order-by-order expressions of the perturbation series for the state approximated by  $|\psi_K^{\text{CI}}(\gamma_K \mathcal{J}\pi)\rangle$ ,

$$E_K(\gamma_K \mathcal{J}\pi) = E_K^{\text{CI}}(\gamma_K \mathcal{J}\pi) + E_K^{(2)} + \dots, \quad (8)$$

and

$$E_K^{(2)} = \sum_{L=M+1} \sum_{I,J=1}^M C_{IK} C_{JK} \frac{\langle \Phi_I | V | \Phi_L \rangle \langle \Phi_L | V | \Phi_J \rangle}{E_J^{\text{CSF}} - E_L^{\text{CSF}}}. \quad (9)$$

Many-electron multipole transition operators  $T_{JM}^\vartheta$  for the magnetic ( $\vartheta = E$ ) and electric ( $\vartheta = M$ ) multipoles may be given in second quantized form,

$$T_{JM}^\vartheta = \sum_{ij} \langle t_{JM}^\vartheta \rangle_{ij} a_i^+ a_j. \quad (10)$$

Here  $t_{JM}^\vartheta(\mathbf{r}, w)$  are one-particle multipole transition operators [12]. The absorption probability  $\langle B \rangle_{K \rightarrow K'}$  per unit time of transition between states  $|\psi_K(\gamma_K \mathcal{J}\pi)\rangle$  and  $|\psi_{K'}(\gamma_{K'} \mathcal{J}'\pi')\rangle$  with transition energy  $\Delta E = h\omega = E_{K'} - E_K$  is equal to the spontaneous emission probability  $\langle A \rangle_{K' \rightarrow K}$  and is expressed as

$$\begin{aligned} \langle B^{\vartheta J} \rangle_{K \rightarrow K'} &= 2\omega \frac{(2J+1)(J+1)}{(2J+1)J} [\langle T_J^\vartheta \rangle_{K'K}]^2 \\ &= \langle A^{\vartheta J} \rangle_{K' \rightarrow K}. \end{aligned} \quad (11)$$

In the lowest-order of Rayleigh–Schrödinger perturbation theory, the multipole transition amplitude between states  $K$  and  $K'$  is

$$\begin{aligned} \langle T_J^\vartheta \rangle_{KK'}^{(0)} &= \langle \psi_K(\gamma_K \mathcal{J}\pi) | T_{JM}^\vartheta | \psi_{K'}(\gamma_{K'} \mathcal{J}'\pi') \rangle \\ &= \sum_{IL} C_{IK} C_{LK'} \langle \Phi_I(\gamma_I \mathcal{J}\pi) | T_{JM}^\vartheta | \Phi_L'(\gamma_L \mathcal{J}'\pi') \rangle. \end{aligned} \quad (12)$$

Using the order-by-order expressions of the perturbation series for the state approximated by MCDF SCF wavefunction, the next-order transition amplitude is

$$\begin{aligned} \langle T_J^\vartheta \rangle_{KK'}^{(1)} &= \langle \psi_K^{(1)}(\gamma_K \mathcal{J}\pi) | T_{JM}^\vartheta | \psi_{K'}^{(1)}(\gamma_{K'} \mathcal{J}'\pi') \rangle \\ &\quad + \langle \psi_K(\gamma_K \mathcal{J}\pi) | T_{JM}^\vartheta | \psi_{K'}^{(1)}(\gamma_{K'} \mathcal{J}'\pi') \rangle. \end{aligned} \quad (13)$$

As with the second-order energy, the first-order transition amplitude can be expressed in terms of CSFs in the following way

$$\begin{aligned} \langle T_J^\vartheta \rangle_{KK'}^{(1)} &= \sum_{L=M+1} \sum_{I,I'=1}^M C_{IK} C_{I'K'} \left[ \frac{\langle \Phi_I | V | \Phi_L \rangle \langle \Phi_L | T_{JM}^\vartheta | \Phi_{I'} \rangle}{E_I^{\text{CSF}} - E_L^{\text{CSF}}} \right. \\ &\quad \left. + \frac{\langle \Phi_I | T_{JM}^\vartheta | \Phi_L' \rangle \langle \Phi_L' | V | \Phi_{I'} \rangle}{E_{I'}^{\text{CSF}} - E_L^{\text{CSF}}} \right]. \end{aligned} \quad (14)$$

Summation over intermediate states ( $L$ ) includes both the positive and negative energy subspaces. With the summation extended to negative energy subspace, electric dipole (E1) and electric quadrupole (E2) transition rates computed in the velocity gauge approach the values computed in length gauge. One-electron reduced matrix elements are frequency-dependent through spherical Bessel functions. The corrections arising from the only approxi-

mate photon frequency may be eliminated semiempirically by using experimental transition energies. In the present study, transition energies (and photon frequencies  $\omega^{(0+1+2)}$ , representing calculations that include zero-, first-, and second-order approximations) calculated by MR-MP second-order perturbation theory are close to the experimental values, and the terms arising from corrections to the photon frequency  $\delta \omega = \omega^{\text{expt}} - \omega^{(0+1+2)}$  in both zero- and first-order transition amplitudes are significantly smaller than in most earlier computations and may be neglected.

### 3. Computational details

The large and small radial components of the Dirac spinors are expanded in sets of even-tempered Gaussian-type functions that satisfy the boundary conditions associated with the finite nucleus [13]. The speed of light is taken to be 137.0359895 a.u. throughout this study. Even-tempered basis sets of 26s24p20d18f Gaussian spinors for up to angular momentum  $L = 3$  and 15 Gaussian spinors for  $L = 4\text{--}11$  are employed. The order of the partial-wave expansion  $L_{\max}$ , the highest angular momentum of the spinors included in the virtual space, is  $L_{\max} = 11$  throughout this study. The nuclei were simulated as spheres of uniform proton charge with the radii  $R = 2.776 \times 10^{-5} \times A^{1/3}$ , where  $A$  is the atomic mass in amu and  $R$  is in Bohr. All electrons have been included in the MR-MP perturbation theory calculations to determine accurately the effects of relativity on electron correlation. Radiative corrections, the Lamb shifts, were estimated for each state by evaluating the electron self-energy and vacuum polarization following an approximation scheme discussed by Indelicato et al. [14].

In order to generate radial spinors, the mean-average of the energies of several states has been optimized using a MCDF SCF procedure. The following set of the nonrelativistic configurations was used: 3s, 3p and 3d for Na-like, 3s<sup>2</sup>, 3s3p, 3p<sup>2</sup> and 3s3d for Mg-like, 3s<sup>2</sup>3p, 3s3p<sup>2</sup>, 3p<sup>3</sup> and 3s3p3d for Al-like, 3s<sup>2</sup>3p<sup>2</sup>, 3s3p<sup>3</sup>, 3p<sup>4</sup> and 3s<sup>2</sup>3p3d for Si-like, 3s<sup>2</sup>3p<sup>3</sup>, 3s3p<sup>4</sup>, 3p<sup>5</sup> and 3s<sup>2</sup>3p<sup>2</sup>3d for P-like ions. To construct our MR-CI wavefunction, the complete active space of the  $n = 3$  complex was employed; all valence electrons were distributed in all possible ways in the  $n = 3$  shells  $3s^{n_1}3p_{1/2}^{n_2}3p_{3/2}^{n_3}3d_{3/2}^{n_4}3d_{5/2}^{n_5}$ .

### 4. Results and discussion

The total numbers of energy levels were 5, 35, 147, 503, and 1205, for Na-like, Mg-like, Al-like, Si-like, and P-like xenon ions, respectively. Electric-dipole transitions were calculated between all levels. QED corrections to the transition amplitudes [15] are not accounted for in the present study. However, the computed transition amplitudes and lifetimes are expected to be accurate to 1–2% even without such a QED correction. This level of accuracy seems sufficient for all practical purposes that we recognize now. The total numbers of E1 lines were 5, 178, 3234, 33,583, and

196,540, for Na-like, Mg-like, Al-like, Si-like, and P-like xenon ions, respectively. In the tables we present only the strongest E1 lines. Metastable levels are those for which E1 decays are forbidden; M1 and E2 transition rates and the corresponding much longer level lifetimes have been calculated for these cases and presented elsewhere [5]. Levels that can decay by E1 transitions will usually do so predominantly, by a wide margin. We do not expect the level lifetimes tabulated here to be significantly altered by the eventual presence of higher-multipole-order decay channels.

We estimate the theoretical uncertainties by comparing (in Table 1) our MR-MP calculated wavelengths with other theoretical results and with experimental data. For one-valence electron systems (Na-like ions), Johnson et al. [16] performed very accurate third-order many-body perturbation theory (MBPT) calculations of the transition energies for a number of members of the NaI isoelectronic sequence. Later, Kim et al. [17] interpolated the theoretical results including Lamb shift estimates for all members of the NaI isoelectronic sequence. The equally accurate *ab initio* calculations by Blundell [18] would have to be interpolated for Na-like Xe, and therefore are of little use here. The MR-MP calculated value of 806,862 cm<sup>-1</sup> agrees very well with the higher-order PT estimate of 806,817 cm<sup>-1</sup>. Both theoretical results are within the error bars of the experimental value of the 3p  ${}^2\text{P}_{1/2}^0 - 3s^2\text{S}_{1/2}$  transition energy,  $806,970 \pm 200$  cm<sup>-1</sup>. It is well known that perturbative procedures converge very well for few-valence electron systems. A very close agreement between different perturbation series was therefore expected. Mg-like systems have two valence electrons and exhibit some quasidegeneracies. The MR-MP calculated Mg-like Xe 3s3p  ${}^1\text{P}_1^0 \rightarrow 3s^2\text{S}_0$  transition energy 1,589,396 cm<sup>-1</sup> lies within about 1000 cm<sup>-1</sup> of the experimental data [4]. The major sources of MR-MP error are the inaccuracies in the phenomenological Lamb shift calculation procedure and higher-order correlation corrections. The results presented for three- and four-valence electrons allows us to estimate that our MR-MP calculations are accurate to 0.04% (about 600 cm<sup>-1</sup>).

The extensive results for Na-like, Mg-like, Al-like, Si-like, and P-like xenon ions are presented in two tables and one graph for each ion species (except for Na-like ions, because of the simplicity of the level scheme) (Tables 2–11, Graphs 1–4). One of the two tables contains all of the MR-MP calculated level energies and lifetimes. The other table lists the strongest electric-dipole transitions together with the lifetime of the upper level and both unbranched and branched ( $A_{\text{br}}$ ) transition rates. For most xenon ions there are a great many transitions; we have therefore limited this list to the strongest lines, which is still a great number for the ions with several electrons in the valence shell. The full set of the calculated lines has been convoluted with a Gaussian line profile, and a synthetic survey spectrum is shown for each xenon ion. Detailed spectra with numerous prominent lines have been enlarged and plotted along with the surveys.

We have tested the validity of the present type of calculation by comparison to other calculational results and to experimental data, which are available, for example, for a medium- $Z$  (Xe) [5] and a high- $Z$  (Au,  $Z=79$ ) [7,6] element. In both cases, time-resolved beam-foil spectra [1–3] and time-integrated spectra from an electron beam ion trap (SuperEBIT at Livermore) [4] were at hand. The MR-MP calculations matched the experimental line positions from SuperEBIT typically to within 50 mÅ, which is a notable improvement over practically all earlier calculations for such ions with two or more  $n=3$  valence electrons. In the spectrally less well resolved, but time resolved beam-foil spectra, the relative line intensities in synthetic spectra were also close to the experimental pattern and suggested the re-identification of several lines so that now a consistent set of line identifications is available. We also refer the reader to those comparison papers [5–7] for references to most of the other calculations.

In conclusion, these systematic calculations provide a consistent and accurate set of reference data that has been corroborated by comparison with reliable experimental data. The computational approach has been tested for much heavier ions as well, promising results of similar quality for similar ions of all naturally occurring elements.

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## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.adt.2008.03.001.

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## Explanation of Tables

**Table 1.** Contribution ( $\text{cm}^{-1}$ ) from each order of perturbation theory to the transition energies of lines in the 60- to 150-Å wavelength range

$E^{\text{CI}}$	Multireference configuration interaction energy
$E^{(2)}$	Second order energy
$E^{(0+1+2)}$	$E_K^{(0+1+2)} = E_K^{\text{CI}} + E_K^{(2)}$
$E_{\text{LS}}$	Lamb shift (LS) correction
$E_{\text{other}}$	First-order frequency-dependent Breit correction, $\Delta B(\omega)^{(1)}$ , plus normal and specific mass shifts
$E_{\text{total}}$	Total energy

Results of the present MR-MP calculations compared with third-order MBPT calculations [16] including Lamb shift corrections [17] and with experimental data.

**Table 2.** Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{43+}$  (Na-like) ions

Occ	Occupation of the dominant relativistic CSF $3s^{n_1}3p_{1/2}^{n_2}3p_{3/2}^{n_3}3d_{3/2}^{n_4}3d_{5/2}^{n_5}$
$J(\text{No})P$	Key consisting of the quantum number $J$ , parity $P$ , and appearance number No
$E$	Excitation energy in $\text{cm}^{-1}$
$\tau$	Lifetime in seconds

Only lifetimes of levels that are dominated by E1 decays are listed.

**Table 3.** Transitions in  $\text{Xe}^{43+}$  (Na-like) ions

$\lambda$	Transition wavelength in Ångström
Upper	Key of the upper level
$\tau$	Upper level lifetime in seconds
Lower	Key of the lower level
$A$	Unbranched (total) transition rate
$A_{\text{br}}$	Branched transition rate

**Table 4.** Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{42+}$  (Mg-like) ions

Same as in Table 2

**Table 5.** Transitions with rates higher than  $10^8 \text{ s}^{-1}$  in  $\text{Xe}^{42+}$  (Mg-like) ions

Same as in Table 3

**Table 6.** Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{41+}$  (Al-like) ions

Same as in Table 2

**Table 7.** Transitions with rates higher than  $10^9 \text{ s}^{-1}$  in  $\text{Xe}^{41+}$  (Al-like) ions

Same as in Table 3

**Table 8.** Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{40+}$  (Si-like) ions

Same as in Table 2

**Table 9.** **Transitions with rates higher than  $5 \times 10^{10} \text{ s}^{-1}$  in  $\text{Xe}^{40+}$  (Si-like) ions**  
 Same as in [Table 3](#)

**Table 10.** **Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{39+}$  (P-like) ions**  
 Same as in [Table 2](#)

**Table 11.** **Transitions with rates higher than  $5 \times 10^{10} \text{ s}^{-1}$  in  $\text{Xe}^{39+}$  (P-like) ions**  
 Same as in [Table 3](#)

Explanation of Graphs

- Graph 1.** **Synthetic spectra of  $\text{Xe}^{42+}$  (Mg-like) ions**  
 The full set of the calculated lines has been convoluted with a Gaussian line profile, and a synthetic survey spectrum is shown for each xenon ion. Detail spectra with numerous prominent lines have been enlarged and plotted along with the surveys
- Graph 2.** **Synthetic spectra of  $\text{Xe}^{41+}$  (Al-like) ions**  
 Same as for [Graph 1](#)
- Graph 3.** **Synthetic spectra of  $\text{Xe}^{40+}$  (Si-like) ions**  
 Same as for [Graph 1](#)
- Graph 4.** **Synthetic spectra of  $\text{Xe}^{39+}$  (P-like) ions**  
 Same as for [Graph 1](#)

Table 1

Contribution ( $\text{cm}^{-1}$ ) from each order of perturbation theory to the transition energies in the 60- to 150- $\text{\AA}$  wavelength range. See page 655 for Explanation of Tables

	$E^{\text{CI}}$	$E^{(2)}$	$E^{(0+1+2)}$	$E_{\text{LS}}$	$E_{\text{other}}$	$E_{\text{total}}$
Na-like $3p\ ^2P_{1/2}^o \rightarrow 3s^2S_{1/2}$						
MR-MP	820,982	−2056	818,926	−11,946	−62	806,862
MBPT	830,667	−1633		−12,217		806,817
Experiment [19]						806,970 ± 200
Mg-like $3s3p\ ^1P_1^o \rightarrow 3s^2\ ^1S_0$						
MR-MP	1,606,498	−5578	1,600,920	−10,644	−833	1,589,396
Experiment [4]						1,590,460 ± 300
Experiment [5]						1,590,330 ± 1250
Al-like $3s3p^2\ ^2P_{1/2} \rightarrow 3s^2\ 3p\ ^2P_{1/2}^o$						
MR-MP	1,640,900	−6506	1,634,394	−10,589	−816	1,622,936
Experiment [5]						1,623,900 ± 1300
Si-like $3s3p^3\ ^3D_1^o \rightarrow 3s^2\ 3p^2\ ^3P_0$						
MR-MP	1,589,544	−2225	1,587,319	−8974	−748	1,577,544
Experiment [5]						1,578,500 ± 1250

Table 2

Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{43+}$  (Na-like) ions. See page 655  
for Explanation of Tables

Occ	$J(\text{No})P$	$E$	$\tau$
10000	1/2(1)	0	
01000	1/2(1)*	806,861	4.270D–11
00100	3/2(1)*	1,500,802	6.363D–12
00010	3/2(1)	2,522,571	5.785D–12
00001	5/2(1)	2,678,242	1.534D–11

Table 3  
Transitions in  $\text{Xe}^{43+}$  (Na-like) ions. See page 655 for Explanation of Tables

$\lambda$	Upper	$\tau$	Lower	$A$	$A_{\text{br}}$
58.285	3/2(1)	5.785D–12	1/2(1)*	1.6589D+11	1.5921D+11
66.631	1/2(1)*	6.363D–12	1/2(1)	1.5717D+11	1.5717D+11
84.930	5/2(1)	1.534D–11	3/2(1)*	6.5204D+10	6.5204D+10
97.869	3/2(1)	5.785D–12	3/2(1)*	6.9636D+09	2.8053D+08
123.937	3/2(1)*	4.270D–11	1/2(1)	2.3420D+10	2.3420D+10

Table 4

Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{42+}$  (Mg-like) ions. See page 655  
for Explanation of Tables

Occ	$J(\text{No})P$	$E$	$\tau$
20000	0(1)	0	
11000	0(1)*	699,010	
11000	1(1)*	769,510	1.623D–10
10100	2(1)*	1,380,000	
10100	1(2)*	1,589,390	3.645D–12
02000	0(2)	1,677,773	1.467D–11
01100	2(1)	2,282,330	1.308D–11
01100	1(1)	2,288,427	4.706D–12
10010	1(2)	2,545,077	4.768D–12
10010	2(2)	2,581,755	3.960D–12
10001	3(1)	2,696,523	1.163D–11
10001	2(3)	2,768,250	6.978D–12
00200	2(4)	3,057,724	2.569D–12
00200	0(3)	3,121,076	2.880D–12
01010	2(2)*	3,301,153	3.473D–11
01010	1(3)*	3,477,609	3.278D–12
01001	2(3)*	3,547,796	9.068D–12
01001	3(1)*	3,548,338	1.653D–11
00110	2(4)*	4,043,424	2.841D–12
00110	3(2)*	4,101,892	2.975D–12
00110	0(2)*	4,102,684	2.592D–12
00110	1(4)*	4,106,003	2.602D–12
00101	4(1)*	4,134,127	7.275D–12
00101	2(5)*	4,208,796	3.898D–12
00101	3(3)*	4,328,199	3.461D–12
00101	1(5)*	4,388,405	3.317D–12
00020	2(5)	5,155,152	2.613D–12
00020	0(4)	5,286,121	2.281D–12
00011	3(2)	5,286,539	3.767D–12
00011	4(1)	5,353,595	4.735D–12
00011	2(6)	5,358,181	3.214D–12
00011	1(3)	5,381,073	3.135D–12
00002	4(2)	5,477,271	7.077D–12
00002	2(7)	5,522,440	5.448D–12
00002	0(5)	5,699,117	3.809D–12

Table 5

Transitions with rates higher than  $10^8 \text{ s}^{-1}$  in  $\text{Xe}^{42+}$  (Mg-like) ions. See page 655 for Explanation of Tables

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
24.333	0(5)	3.809D–12	1(2)*	1.1430D+10	4.9757D+08
42.525	0(3)	2.880D–12	1(1)*	6.1748D+09	1.0982D+08
45.014	0(5)	3.809D–12	1(3)*	2.7490D+10	2.8781D+09
47.482	1(5)*	3.317D–12	2(1)	8.8880D+09	2.6204D+08
48.614	2(6)	3.214D–12	2(2)*	8.3176D+09	2.2238D+08
48.879	3(3)*	3.461D–12	2(1)	9.4405D+09	3.0845D+08
50.032	2(3)	6.978D–12	1(1)*	4.7485D+10	1.5734D+10
51.842	4(2)	7.077D–12	3(1)*	1.4028D+10	1.3927D+09
53.937	2(5)	2.613D–12	2(2)*	2.0078D+11	1.0532D+11
54.169	1(2)	4.768D–12	0(1)*	1.3453D+11	8.6304D+10
54.547	1(3)	3.135D–12	2(3)*	2.0752D+11	1.3500D+11
54.834	1(4)*	2.602D–12	2(1)	1.4739D+10	5.6529D+08
54.958	3(2)*	2.975D–12	2(1)	1.0474D+11	3.2637D+10
55.018	1(4)*	2.602D–12	1(1)	1.5739D+11	6.4458D+10
55.119	0(2)*	2.592D–12	1(1)	1.9545D+11	9.8994D+10
55.180	2(2)	3.960D–12	1(1)*	2.4973D+11	2.4699D+11
55.237	2(6)	3.214D–12	2(3)*	1.6231D+11	8.4684D+10
55.253	2(6)	3.214D–12	3(1)*	4.2430D+10	5.7870D+09
55.294	0(4)	2.281D–12	1(3)*	4.0939D+11	3.8230D+11
55.351	1(5)*	3.317D–12	2(2)	1.3162D+10	5.7462D+08
55.394	4(1)	4.735D–12	3(1)*	8.7794D+10	3.6494D+10
55.561	1(3)*	3.278D–12	0(2)	2.5983D+11	2.2131D+11
56.320	1(2)	4.768D–12	1(1)*	7.1294D+10	2.4237D+10
56.783	2(4)*	2.841D–12	2(1)	1.4733D+11	6.1667D+10
56.980	2(4)*	2.841D–12	1(1)	9.7785D+10	2.7167D+10
57.513	3(2)	3.767D–12	2(3)*	6.7009D+10	1.6915D+10
57.531	3(2)	3.767D–12	3(1)*	1.2513D+11	5.8983D+10
59.605	2(4)	2.569D–12	2(1)*	1.2018D+11	3.7100D+10
59.611	2(5)	2.613D–12	1(3)*	1.6124D+11	6.7923D+10
60.106	2(5)*	3.898D–12	1(2)	6.6517D+09	1.7247D+08
61.287	3(3)*	3.461D–12	3(1)	7.2468D+10	1.8175D+10
61.461	2(5)*	3.898D–12	2(2)	2.8656D+10	3.2010D+09
61.722	1(5)*	3.317D–12	2(3)	1.2824D+11	5.4554D+10
62.916	1(1)	4.706D–12	0(1)*	1.1944D+11	6.7140D+10
62.917	1(2)*	3.645D–12	0(1)	2.7433D+11	2.7433D+11
64.065	1(4)*	2.602D–12	1(2)	1.4323D+11	5.3381D+10
64.105	3(3)*	3.461D–12	2(3)	1.2404D+10	5.3249D+08
64.201	0(2)*	2.592D–12	1(2)	1.9043D+11	9.3974D+10
65.288	0(3)	2.880D–12	1(2)*	3.4102D+11	3.3495D+11
65.606	1(4)*	2.602D–12	2(2)	5.6223D+10	8.2251D+09
65.784	3(2)*	2.975D–12	2(2)	1.8513D+11	1.0196D+11
65.836	1(1)	4.706D–12	1(1)*	6.5320D+10	2.0079D+10
66.102	2(1)	1.308D–11	1(1)*	5.6963D+10	4.2453D+10
66.126	2(5)*	3.898D–12	3(1)	4.2604D+10	7.0755D+09
66.740	2(4)*	2.841D–12	1(2)	6.9999D+10	1.3921D+10
67.613	2(7)	5.448D–12	2(4)*	8.1028D+09	3.5769D+08
68.104	2(4)	2.569D–12	1(2)*	2.6415D+11	1.7921D+11
68.415	2(4)*	2.841D–12	2(2)	2.7973D+10	2.2231D+09
69.418	2(5)*	3.898D–12	2(3)	1.6050D+11	1.0041D+11
69.560	4(1)*	7.275D–12	3(1)	1.3746D+11	1.3746D+11
70.395	2(7)	5.448D–12	3(2)*	4.7520D+09	1.2302D+08
70.600	2(7)	5.448D–12	1(4)*	4.4852D+09	1.0960D+08
71.156	3(2)*	2.975D–12	3(1)	2.3695D+10	1.6703D+09
72.033	2(3)	6.978D–12	2(1)*	7.5409D+10	3.9680D+10
74.452	4(2)	7.077D–12	4(1)*	2.4748D+10	4.3345D+09
74.752	1(4)*	2.602D–12	2(3)	6.9629D+09	1.2615D+08
74.758	1(3)	3.135D–12	2(4)*	1.5340D+10	7.3765D+08
74.983	3(2)*	2.975D–12	2(3)	2.2479D+10	1.5032D+09
75.149	1(5)*	3.317D–12	2(4)	5.3910D+10	9.6404D+09
75.958	3(1)	1.163D–11	2(1)*	8.5973D+10	8.5973D+10
76.060	2(6)	3.214D–12	2(4)*	3.1826D+10	3.2560D+09
76.124	2(7)	5.448D–12	2(5)*	1.0851D+11	6.4145D+10
76.294	0(5)	3.809D–12	1(5)*	2.2301D+11	1.8941D+11

(continued on next page)

Table 5 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
78.223	1(3)	3.135D–12	0(2)*	4.4625D+10	6.2424D+09
78.427	1(3)	3.135D–12	1(4)*	4.4165D+10	6.1144D+09
78.711	3(3)*	3.461D–12	2(4)	1.9365D+11	1.2979D+11
78.906	1(5)*	3.317D–12	0(3)	8.7492D+10	2.5392D+10
78.988	3(1)*	1.653D–11	2(1)	3.1531D+10	1.6439D+10
79.022	2(3)*	9.068D–12	2(1)	1.7837D+10	2.8850D+09
79.405	2(3)*	9.068D–12	1(1)	6.6290D+10	3.9847D+10
79.600	2(6)	3.214D–12	3(2)*	1.4061D+10	6.3551D+08
79.861	2(6)	3.214D–12	1(4)*	3.6554D+10	4.2952D+09
79.891	4(1)	4.735D–12	3(2)*	9.4718D+10	4.2478D+10
80.443	3(2)	3.767D–12	2(4)*	5.3844D+10	1.0921D+10
82.003	4(1)	4.735D–12	4(1)*	2.7518D+10	3.5852D+09
83.735	2(7)	5.448D–12	3(3)*	2.1464D+10	2.5098D+09
84.091	1(3)*	3.278D–12	1(1)	1.0884D+10	3.8830D+08
84.737	0(4)	2.281D–12	1(4)*	2.8088D+10	1.7996D+09
84.828	2(3)	6.978D–12	1(2)*	2.0416D+10	2.9086D+09
85.304	1(3)	3.135D–12	2(5)*	5.7704D+09	1.0438D+08
86.876	2(5)*	3.898D–12	2(4)	1.3032D+10	6.6200D+08
87.027	4(2)	7.077D–12	3(3)*	1.0222D+11	7.3947D+10
88.181	2(7)	5.448D–12	1(5)*	3.1699D+10	5.4741D+09
92.786	3(2)	3.767D–12	2(5)*	1.0657D+10	4.2780D+08
95.315	2(5)	2.613D–12	1(4)*	7.9186D+09	1.6383D+08
98.152	2(2)*	3.473D–11	2(1)	1.3000D+10	5.8692D+09
103.117	2(6)	3.214D–12	1(5)*	7.3785D+09	1.7501D+08
103.457	3(1)*	1.653D–11	2(2)	3.7828D+09	2.3660D+08
107.235	1(3)*	3.278D–12	1(2)	7.1062D+09	1.6554D+08
110.080	1(1)	4.706D–12	2(1)*	2.6422D+10	3.2854D+09
110.100	0(2)	1.467D–11	1(1)*	6.8153D+10	6.8152D+10
110.824	2(1)	1.308D–11	2(1)*	1.4961D+10	2.9285D+09
111.625	1(3)*	3.278D–12	2(2)	2.6081D+10	2.2298D+09
117.396	3(1)*	1.653D–11	3(1)	1.2786D+10	2.7030D+09
117.471	2(3)*	9.068D–12	3(1)	2.1545D+10	4.2090D+09
128.191	3(1)*	1.653D–11	2(3)	1.2107D+10	2.4237D+09
129.953	1(1)*	1.623D–10	0(1)	6.1610D+09	6.1610D+09
132.262	2(2)*	3.473D–11	1(2)	1.0107D+10	3.5478D+09
139.005	2(2)*	3.473D–11	2(2)	5.0817D+09	8.9686D+08
144.313	2(1)	1.308D–11	1(2)*	4.5078D+09	2.6586D+08

Table 6

Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{41+}$  (Al-like) ions. See page 655 for Explanation of Tables

Occ	$J(\text{No})P$	E	$\tau$
21000	1/2(1)*	0	
20100	3/2(1)*	665774	3.790D–07
12000	1/2(1)	817,897	8.700D–11
11100	3/2(1)	1,343,238	7.958D–10
11100	5/2(1)	1,433,127	2.021D–10
11100	3/2(2)	1,557,533	1.096D–11
11100	1/2(2)	1,622,936	2.915D–12
20010	3/2(3)	1,916,301	2.215D–12
20001	5/2(2)	1,963,221	8.222D–11
10200	5/2(3)	2,161,052	5.107D–12
10200	1/2(3)	2,292,721	4.161D–12
10200	3/2(4)	2,332,373	2.110D–12
02100	3/2(2)*	2,391,645	9.923D–12
11010	3/2(3)*	2,503,658	2.836D–11
11010	5/2(1)*	2,564,648	1.101D–10
11010	1/2(2)*	2,705,035	2.934D–12
11010	3/2(4)*	2,714,275	3.030D–12
11001	5/2(2)*	2,727,239	1.221D–11
11001	7/2(1)*	2,776,926	2.099D–11
11001	5/2(3)*	2,834,659	1.214D–11
11001	3/2(5)*	2,840,974	4.675D–12
01200	5/2(4)*	3,057,098	5.256D–12
01200	3/2(6)*	3,105,346	2.307D–12
01200	1/2(3)*	3,134,007	3.791D–12
10110	3/2(7)*	3,254,258	3.639D–12
10110	5/2(5)*	3,256,826	2.930D–12
10110	1/2(4)*	3,260,609	4.156D–12
10110	7/2(2)*	3,273,673	4.447D–12
10101	9/2(1)*	3,290,408	4.640D–07
10101	3/2(8)*	3,389,679	3.923D–12
10101	5/2(6)*	3,421,967	5.689D–12
10110	3/2(9)*	3,483,350	2.369D–12
10101	7/2(3)*	3,498,082	5.665D–12
10110	5/2(7)*	3,525,761	1.741D–12
02010	3/2(5)	3,528,947	1.169D–11
10110	1/2(5)*	3,540,680	1.752D–12
10101	7/2(4)*	3,588,466	3.300D–12
10101	1/2(6)*	3,650,470	3.043D–12
10101	3/2(10)*	3,696,903	2.312D–12
10101	5/2(8)*	3,711,355	2.058D–12
02001	5/2(4)	3,734,715	8.798D–12
00300	3/2(11)*	3,905,650	1.466D–12
01110	5/2(5)	4,060,131	8.098D–12
01110	3/2(6)	4,103,755	4.188D–12
01110	1/2(4)	4,119,363	3.941D–12
01110	7/2(1)	4,125,697	6.648D–12
01101	7/2(2)	4,242,272	5.372D–12
01110	3/2(7)	4,258,726	2.321D–12
01110	5/2(6)	4,261,135	2.469D–12
01101	9/2(1)	4,290,977	8.613D–12
01110	1/2(5)	4,291,867	2.399D–12
01101	3/2(8)	4,311,236	3.674D–12
01101	5/2(7)	4,330,335	4.481D–12
01101	7/2(3)	4,393,739	5.352D–12
01101	5/2(8)	4,443,110	2.856D–12
10020	3/2(9)	4,457,748	2.295D–12
01101	1/2(6)	4,476,240	4.264D–12
01101	3/2(10)	4,493,749	2.840D–12
10020	5/2(9)	4,509,194	1.941D–12
10011	7/2(4)	4,601,137	2.767D–12
10020	1/2(7)	4,610,848	1.693D–12
10011	5/2(10)	4,648,943	2.320D–12
10011	9/2(2)	4,664,203	3.508D–12

Table 6 (continued)

Occ	$J(\text{No})P$	E	$\tau$
10011	3/2(11)	4,672,285	2.536D–12
10011	7/2(5)	4,716,139	3.465D–12
10011	3/2(12)	4,718,456	2.300D–12
10011	5/2(11)	4,729,438	2.304D–12
10011	1/2(8)	4,736,888	2.038D–12
10002	9/2(3)	4,783,712	4.470D–12
10002	7/2(6)	4,821,343	4.818D–12
10002	5/2(12)	4,858,965	3.084D–12
10002	3/2(13)	4,896,968	3.618D–12
00210	3/2(14)	4,916,727	1.534D–12
00201	1/2(9)	4,952,809	2.934D–12
00210	5/2(13)	4,954,293	1.528D–12
00210	7/2(7)	4,994,962	1.868D–12
00201	9/2(4)	4,996,309	2.762D–12
00210	1/2(10)	5,044,688	1.273D–12
00201	7/2(8)	5,078,235	1.868D–12
00210	3/2(15)	5,088,209	1.533D–12
00201	5/2(14)	5,140,766	2.560D–12
10002	1/2(11)	5,163,002	1.833D–12
01020	5/2(9)*	5,204,955	9.918D–12
00201	5/2(15)	5,250,566	1.658D–12
00201	3/2(16)	5,265,558	1.543D–12
01011	7/2(5)*	5,388,665	1.066D–11
01020	3/2(12)*	5,409,570	2.380D–12
01020	1/2(7)*	5,415,411	3.225D–12
01011	5/2(10)*	5,420,513	7.357D–12
01011	3/2(13)*	5,470,534	3.976D–12
01011	1/2(8)*	5,473,599	6.194D–12
01011	9/2(2)*	5,480,541	9.079D–12
01011	5/2(11)*	5,585,782	2.387D–12
01011	7/2(6)*	5,596,321	3.324D–12
01011	3/2(14)*	5,638,054	2.260D–12
01011	9/2(3)*	5,662,388	8.975D–12
01011	7/2(7)*	5,670,894	4.366D–12
01002	5/2(12)*	5,702,601	6.235D–12
01002	3/2(15)*	5,707,475	4.477D–12
01002	1/2(9)*	5,872,696	3.897D–12
01002	3/2(16)*	5,999,733	1.532D–12
01002	5/2(13)*	6,033,360	1.622D–12
01002	1/2(10)*	6,046,792	1.494D–12
01002	7/2(8)*	6,051,376	1.741D–12
00111	9/2(4)*	6,066,353	2.571D–12
00111	11/2(1)*	6,085,536	4.208D–12
00111	7/2(9)*	6,087,736	2.343D–12
00111	3/2(17)*	6,131,075	1.666D–12
00111	5/2(14)*	6,141,868	2.428D–12
00111	1/2(11)*	6,152,930	2.014D–12
00111	5/2(15)*	6,180,723	2.003D–12
00111	7/2(10)*	6,184,298	2.552D–12
00111	3/2(18)*	6,192,775	1.585D–12
00102	5/2(16)*	6,240,577	2.734D–12
00111	7/2(11)*	6,254,012	2.195D–12
00102	11/2(2)*	6,263,869	4.486D–12
00102	9/2(5)*	6,266,700	2.980D–12
00111	3/2(19)*	6,294,819	1.804D–12
00102	7/2(12)*	6,321,147	2.606D–12
00111	5/2(17)*	6,334,454	1.765D–12
00102	1/2(12)*	6,351,267	2.090D–12
00111	9/2(6)*	6,356,719	2.125D–12
00111	3/2(20)*	6,394,481	1.546D–12
00111	5/2(18)*	6,402,134	1.958D–12
00111	1/2(13)*	6,489,276	1.686D–12
00102	7/2(13)*	6,497,550	2.229D–12
00111	3/2(21)*	6,497,790	2.921D–12

(continued on next page)

Table 6 (continued)

Occ	$J(\text{No})P$	E	$\tau$
00102	5/2(19)*	6,512,597	2.254D–12
00102	3/2(22)*	6,615,986	1.769D–12
00030	3/2(17)	7,216,168	1.458D–12
00021	5/2(16)	7,313,947	1.795D–12
00021	7/2(9)	7,361,186	1.988D–12
00021	9/2(5)	7,371,065	2.154D–12
00021	3/2(18)	7,372,380	1.614D–12
00021	1/2(12)	7,399,165	1.629D–12
00012	7/2(10)	7,476,554	2.391D–12
00012	9/2(6)	7,487,189	2.739D–12
00021	5/2(17)	7,488,848	1.807D–12
00012	3/2(19)	7,537,441	2.122D–12
00012	1/2(13)	7,556,860	2.041D–12
00012	5/2(18)	7,586,948	2.131D–12
00012	5/2(19)	7,604,800	2.206D–12
00012	7/2(11)	7,619,339	2.510D–12
00003	9/2(7)	7,644,913	3.778D–12
00003	3/2(20)	7,689,542	2.572D–12
00012	3/2(21)	7,793,657	2.416D–12
00003	5/2(20)	7,827,958	2.630D–12

Table 7

Transitions with rates higher than  $10^9 \text{ s}^{-1}$  in  $\text{Xe}^{41+}$  (Al-like) ions. See page 655 for Explanation of Tables

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
47.780	1/2(6)*	3.043D–12	3/2(2)	1.9642D+10	1.1740D+09
47.978	5/2(10)	2.320D–12	5/2(1)*	3.7860D+10	3.3257D+09
48.427	7/2(3)*	5.665D–12	5/2(1)	6.0992D+10	2.1073D+10
48.638	3/2(13)	3.618D–12	3/2(5)*	1.9858D+10	1.4268D+09
48.746	5/2(8)	2.856D–12	3/2(2)*	2.6090D+10	1.9442D+09
49.216	1/2(8)	2.038D–12	1/2(2)*	3.3500D+10	2.2871D+09
49.321	1/2(6)*	3.043D–12	1/2(2)	6.6278D+10	1.3367D+10
49.400	5/2(12)	3.084D–12	5/2(3)*	3.1444D+10	3.0491D+09
49.430	3/2(5)*	4.675D–12	1/2(1)	9.0751D+10	3.8500D+10
49.554	5/2(12)	3.084D–12	3/2(5)*	2.0667D+10	1.3172D+09
49.676	1/2(13)*	1.686D–12	1/2(6)	9.9845D+10	1.6808D+10
49.721	3/2(17)	1.458D–12	5/2(9)*	1.3127D+11	2.5116D+10
49.831	9/2(3)	4.470D–12	7/2(1)*	5.0123D+10	1.1231D+10
49.896	3/2(12)	2.300D–12	3/2(4)*	3.8425D+10	3.3957D+09
50.249	3/2(10)	2.840D–12	3/2(3)*	4.5613D+10	5.9087D+09
50.261	1/2(12)	1.629D–12	3/2(12)*	8.4369D+10	1.1597D+10
50.281	5/2(6)*	5.689D–12	5/2(1)	1.6812D+10	1.6079D+09
50.432	3/2(15)	1.533D–12	3/2(6)*	3.4510D+10	1.8252D+09
50.444	9/2(5)	2.154D–12	7/2(5)*	2.9015D+10	1.8132D+09
50.678	5/2(13)*	1.622D–12	5/2(5)	7.0449D+10	8.0483D+09
50.687	11/2(2)*	4.486D–12	9/2(1)	3.0957D+10	4.2988D+09
50.697	7/2(9)	1.988D–12	7/2(5)*	4.9569D+10	4.8842D+09
50.807	5/2(7)*	1.741D–12	3/2(2)	1.3695D+11	3.2654D+10
50.943	9/2(6)*	2.125D–12	7/2(3)	6.0985D+10	7.9047D+09
50.967	7/2(9)*	2.343D–12	7/2(1)	4.1681D+10	4.0700D+09
51.172	3/2(15)	1.533D–12	1/2(3)*	9.0777D+10	1.2629D+10
51.175	3/2(9)	2.295D–12	3/2(3)*	1.9231D+11	8.4869D+10
51.233	3/2(18)	1.614D–12	5/2(10)*	1.9245D+11	5.9769D+10
51.246	3/2(20)*	1.546D–12	5/2(8)	1.5110D+11	3.5293D+10
51.323	7/2(11)	2.510D–12	7/2(7)*	3.7897D+10	3.6046D+09
51.413	3/2(11)	2.536D–12	5/2(2)*	2.0813D+11	1.0984D+11
51.426	5/2(9)	1.941D–12	5/2(1)*	2.1248D+11	8.7618D+10
51.466	1/2(10)*	1.494D–12	3/2(6)	1.4422D+11	3.1079D+10
51.493	7/2(10)*	2.552D–12	7/2(2)	3.3694D+10	2.8969D+09
51.504	3/2(13)*	3.976D–12	3/2(5)	1.2195D+11	5.9122D+10
51.527	5/2(17)*	1.765D–12	7/2(3)	3.5530D+10	2.2282D+09
51.557	3/2(16)*	1.532D–12	5/2(5)	1.0408D+11	1.6598D+10
51.564	1/2(10)	1.273D–12	3/2(6)*	2.1963D+11	6.1399D+10
51.581	5/2(7)	4.481D–12	3/2(2)*	2.0186D+10	1.8259D+09
51.603	7/2(7)	1.868D–12	5/2(4)*	8.2648D+10	1.2759D+10
51.648	7/2(7)*	4.366D–12	5/2(4)	5.4853D+10	1.3136D+10
51.688	5/2(10)	2.320D–12	3/2(4)*	3.8889D+10	3.5090D+09
51.709	5/2(19)	2.206D–12	7/2(7)*	1.0727D+11	2.5387D+10
51.769	3/2(18)*	1.585D–12	5/2(6)	5.1763D+10	4.2460D+09
51.850	1/2(12)	1.629D–12	3/2(13)*	1.3357D+11	2.9066D+10
51.883	1/2(10)*	1.494D–12	1/2(4)	1.1344D+11	1.9227D+10
51.926	3/2(9)*	2.369D–12	3/2(2)	1.3747D+11	4.4767D+10
51.930	7/2(8)*	1.741D–12	7/2(1)	1.4954D+11	3.8924D+10
51.933	1/2(12)	1.629D–12	1/2(8)*	5.7294D+10	5.3481D+09
51.940	5/2(16)	1.795D–12	7/2(5)*	1.0765D+11	2.0805D+10
52.037	5/2(10)	2.320D–12	5/2(2)*	1.8017D+11	7.5316D+10
52.057	3/2(21)	2.416D–12	1/2(9)*	6.7780D+10	1.1098D+10
52.094	3/2(8)	3.674D–12	3/2(2)*	3.3818D+10	4.2017D+09
52.145	1/2(5)*	1.752D–12	1/2(2)	2.1935D+11	8.4298D+10
52.155	1/2(4)*	4.156D–12	3/2(1)	2.2729D+11	2.1470D+11
52.172	7/2(11)	2.510D–12	5/2(12)*	7.0872D+10	1.2607D+10
52.184	3/2(3)	2.215D–12	1/2(1)*	4.5127D+11	4.5101D+11
52.191	5/2(18)	2.131D–12	7/2(7)*	1.4701D+11	4.6054D+10
52.258	5/2(5)*	2.930D–12	3/2(1)	1.0141D+11	3.0130D+10
52.328	3/2(7)*	3.639D–12	3/2(1)	2.1873D+11	1.7411D+11
52.400	5/2(18)*	1.958D–12	3/2(10)	9.3220D+10	1.7017D+10
52.420	5/2(13)*	1.622D–12	7/2(1)	4.7414D+10	3.6455D+09
52.471	1/2(7)	1.693D–12	1/2(2)*	2.0086D+11	6.8305D+10

Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
52.539	3/2(14)*	2.260D–12	5/2(4)	3.1995D+11	2.3138D+11
52.547	5/2(17)	1.807D–12	5/2(11)*	5.2251D+10	4.9340D+09
52.571	5/2(19)	2.206D–12	5/2(12)*	3.8178D+10	3.2156D+09
52.611	3/2(20)*	1.546D–12	3/2(10)	3.5184D+10	1.9138D+09
52.625	1/2(5)	2.399D–12	3/2(2)*	2.3422D+11	1.3161D+11
52.643	5/2(14)*	2.428D–12	7/2(2)	2.3079D+11	1.2933D+11
52.665	3/2(18)	1.614D–12	1/2(8)*	7.6249D+10	9.3821D+09
52.706	5/2(19)	2.206D–12	3/2(15)*	2.7084D+10	1.6184D+09
52.709	5/2(13)	1.528D–12	5/2(4)*	7.7905D+10	9.2748D+09
52.727	1/2(7)	1.693D–12	3/2(4)*	3.6642D+11	2.2731D+11
52.732	3/2(4)*	3.030D–12	1/2(1)	3.1137D+11	2.9377D+11
52.743	3/2(16)*	1.532D–12	3/2(6)	1.3263D+11	2.6952D+10
52.745	1/2(8)	2.038D–12	3/2(5)*	3.4434D+11	2.4164D+11
52.777	5/2(11)	2.304D–12	5/2(3)*	1.5083D+11	5.2418D+10
52.793	1/2(11)*	2.014D–12	3/2(7)	2.7883D+10	1.5659D+09
52.814	5/2(16)	1.795D–12	5/2(10)*	5.9652D+10	6.3883D+09
52.839	5/2(17)	1.807D–12	7/2(6)*	2.4742D+11	1.1063D+11
52.872	5/2(17)*	1.765D–12	5/2(8)	7.7079D+10	1.0487D+10
52.895	9/2(5)	2.154D–12	9/2(2)*	1.7430D+11	6.5432D+10
52.953	5/2(11)	2.304D–12	3/2(5)*	8.3438D+10	1.6041D+10
52.986	9/2(2)	3.508D–12	7/2(1)*	1.2326D+11	5.3286D+10
52.990	1/2(2)*	2.934D–12	1/2(1)	3.2785D+11	3.1536D+11
53.009	1/2(7)*	3.225D–12	3/2(5)	2.4759D+11	1.9767D+11
53.069	5/2(18)	2.131D–12	5/2(12)*	2.5392D+10	1.3740D+09
53.084	3/2(12)	2.300D–12	5/2(3)*	7.1008D+10	1.1596D+10
53.148	3/2(18)*	1.585D–12	3/2(8)	1.2943D+11	2.6544D+10
53.150	7/2(5)	3.465D–12	5/2(3)*	1.3044D+11	5.8955D+10
53.173	7/2(9)	1.988D–12	9/2(2)*	6.8637D+10	9.3647D+09
53.174	3/2(12)*	2.380D–12	3/2(5)	3.3406D+11	2.6564D+11
53.181	3/2(16)*	1.532D–12	1/2(4)	6.1508D+10	5.7970D+09
53.206	5/2(18)	2.131D–12	3/2(15)*	3.5251D+10	2.6482D+09
53.263	3/2(12)	2.300D–12	3/2(5)*	1.6975D+11	6.6269D+10
53.333	1/2(12)*	2.090D–12	1/2(6)	4.3842D+10	4.0178D+09
53.365	7/2(4)	2.767D–12	5/2(2)*	5.7302D+10	9.0849D+09
53.391	9/2(5)*	2.980D–12	7/2(3)	4.0839D+10	4.9708D+09
53.409	3/2(17)*	1.666D–12	3/2(7)	7.8213D+10	1.0189D+10
53.418	5/2(10)	2.320D–12	7/2(1)*	4.6253D+10	4.9638D+09
53.478	3/2(17)*	1.666D–12	5/2(6)	1.7302D+11	4.9859D+10
53.491	5/2(6)	2.469D–12	3/2(2)*	1.2753D+11	4.0158D+10
53.491	5/2(15)*	2.003D–12	3/2(8)	3.6202D+10	2.6257D+09
53.560	3/2(7)	2.321D–12	3/2(2)*	3.0914D+11	2.2182D+11
53.693	3/2(18)*	1.585D–12	5/2(7)	7.4232D+10	8.7320D+09
53.717	7/2(6)*	3.324D–12	5/2(4)	1.1284D+11	4.2332D+10
53.751	3/2(9)*	2.369D–12	1/2(2)	1.3698D+11	4.4449D+10
53.756	7/2(11)*	2.195D–12	7/2(3)	8.4745D+10	1.5760D+10
53.774	3/2(14)	1.534D–12	5/2(4)*	6.9293D+10	7.3634D+09
53.939	7/2(10)*	2.552D–12	5/2(7)	7.2035D+10	1.3241D+10
54.004	3/2(19)*	1.804D–12	5/2(8)	9.5335D+10	1.6401D+10
54.023	5/2(11)*	2.387D–12	5/2(4)	3.1977D+11	2.4410D+11
54.031	5/2(17)	1.807D–12	3/2(14)*	4.0101D+10	2.9062D+09
54.043	5/2(15)*	2.003D–12	5/2(7)	5.0834D+10	5.1771D+09
54.072	1/2(13)	2.041D–12	3/2(15)*	2.4492D+11	1.2242D+11
54.085	5/2(13)	1.528D–12	3/2(6)*	5.7788D+10	5.1033D+09
54.187	7/2(9)*	2.343D–12	7/2(2)	1.2236D+11	3.5075D+10
54.247	5/2(16)	1.795D–12	3/2(13)*	4.3151D+10	3.3429D+09
54.298	1/2(11)*	2.014D–12	3/2(8)	2.5285D+11	1.2877D+11
54.332	7/2(2)*	4.447D–12	5/2(1)	2.1008D+11	1.9626D+11
54.371	3/2(17)*	1.666D–12	1/2(5)	3.9785D+10	2.6363D+09
54.418	3/2(11)	2.536D–12	5/2(3)*	3.4472D+10	3.0132D+09
54.501	3/2(19)	2.122D–12	5/2(12)*	6.4547D+10	8.8402D+09
54.581	3/2(8)*	3.923D–12	3/2(2)	7.8996D+10	2.4478D+10
54.646	3/2(19)	2.122D–12	3/2(15)*	1.3613D+11	3.9321D+10
54.746	7/2(9)*	2.343D–12	5/2(6)	2.5623D+10	1.5380D+09
54.800	9/2(6)	2.739D–12	9/2(3)*	1.0773D+11	3.1792D+10
54.818	7/2(4)	2.767D–12	7/2(1)*	1.8136D+11	9.1010D+10

Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
54.822	9/2(4)*	2.571D–12	7/2(2)	5.7553D+10	8.5150D+09
54.834	5/2(5)*	2.930D–12	5/2(1)	2.2421D+11	1.4728D+11
54.911	3/2(7)*	3.639D–12	5/2(1)	4.6627D+10	7.9122D+09
54.950	3/2(17)*	1.666D–12	3/2(8)	2.6158D+10	1.1396D+09
54.988	3/2(19)*	1.804D–12	1/2(6)	8.0176D+10	1.1600D+10
55.040	3/2(20)	2.572D–12	1/2(9)*	5.2253D+10	7.0233D+09
55.057	9/2(6)	2.739D–12	7/2(7)*	4.3956D+10	5.2926D+09
55.122	7/2(10)	2.391D–12	9/2(3)*	5.4651D+10	7.1408D+09
55.206	3/2(14)	1.534D–12	3/2(6)*	2.1403D+11	7.0246D+10
55.221	7/2(11)*	2.195D–12	5/2(8)	3.9582D+10	3.4382D+09
55.276	7/2(8)*	1.741D–12	7/2(2)	2.8277D+10	1.3918D+09
55.311	5/2(10)	2.320D–12	3/2(5)*	2.7803D+10	1.7935D+09
55.353	3/2(17)	1.458D–12	3/2(12)*	3.1316D+11	1.4294D+11
55.381	7/2(10)	2.391D–12	7/2(7)*	1.1155D+11	2.9751D+10
55.415	7/2(8)	1.868D–12	7/2(2)*	3.8016D+10	2.7001D+09
55.523	3/2(19)*	1.804D–12	3/2(10)	7.7643D+10	1.0878D+10
55.532	3/2(17)	1.458D–12	1/2(7)*	8.9332D+10	1.1632D+10
55.656	7/2(9)*	2.343D–12	9/2(1)	4.8065D+10	5.4122D+09
55.713	5/2(9)	1.941D–12	3/2(4)*	2.4971D+11	1.2102D+11
55.724	11/2(1)*	4.208D–12	9/2(1)	6.7908D+10	1.9406D+10
55.853	1/2(10)	1.273D–12	3/2(7)*	5.7923D+10	4.2707D+09
55.858	7/2(8)*	1.741D–12	5/2(6)	7.7390D+10	1.0425D+10
55.906	3/2(10)	2.840D–12	1/2(2)*	3.1812D+10	2.8741D+09
55.922	1/2(5)	2.399D–12	3/2(3)*	3.8667D+10	3.5869D+09
55.960	5/2(15)*	2.003D–12	7/2(3)	2.6296D+10	1.3853D+09
55.972	3/2(18)	1.614D–12	5/2(11)*	2.5437D+10	1.0442D+09
56.051	1/2(10)	1.273D–12	1/2(4)*	4.4584D+10	2.5302D+09
56.094	3/2(14)	1.534D–12	1/2(3)*	7.7846D+10	9.2933D+09
56.325	7/2(9)	1.988D–12	5/2(11)*	7.5455D+10	1.1317D+10
56.326	9/2(4)*	2.571D–12	9/2(1)	1.7812D+11	8.1560D+10
56.346	9/2(5)	2.154D–12	7/2(6)*	7.5770D+10	1.2365D+10
56.350	5/2(13)*	1.622D–12	3/2(7)	1.1181D+11	2.0272D+10
56.371	7/2(10)	2.391D–12	5/2(12)*	4.8709D+10	5.6724D+09
56.391	1/2(11)	1.833D–12	3/2(8)*	4.9776D+10	4.5410D+09
56.426	5/2(13)*	1.622D–12	5/2(6)	1.2040D+11	2.3509D+10
56.601	3/2(8)*	3.923D–12	1/2(2)	7.6349D+10	2.2865D+10
56.609	3/2(10)	2.840D–12	5/2(2)*	4.5678D+10	5.9255D+09
56.610	7/2(4)	2.767D–12	5/2(3)*	3.9546D+10	4.3270D+09
56.662	7/2(9)	1.988D–12	7/2(6)*	1.2444D+11	3.0780D+10
56.750	3/2(6)*	2.307D–12	3/2(1)	1.0251D+11	2.4245D+10
56.782	1/2(12)	1.629D–12	3/2(14)*	1.7772D+11	5.1459D+10
56.900	5/2(6)	2.469D–12	3/2(3)*	5.4737D+10	7.3980D+09
56.902	7/2(9)*	2.343D–12	5/2(7)	3.7020D+10	3.2105D+09
56.915	3/2(22)*	1.769D–12	5/2(12)	2.6472D+10	1.2395D+09
56.982	1/2(10)*	1.494D–12	1/2(5)	1.6546D+11	4.0903D+10
57.054	3/2(9)	2.295D–12	1/2(2)*	1.7345D+11	6.9046D+10
57.062	5/2(15)	1.658D–12	7/2(3)*	4.7710D+10	3.7729D+09
57.065	1/2(13)*	1.686D–12	1/2(8)	3.6024D+10	2.1880D+09
57.204	5/2(8)*	2.058D–12	5/2(2)	1.0727D+11	2.3678D+10
57.286	3/2(17)	1.458D–12	3/2(13)*	9.4258D+10	1.2950D+10
57.320	3/2(11)*	1.466D–12	5/2(3)	5.8285D+10	4.9806D+09
57.438	3/2(16)*	1.532D–12	3/2(7)	1.7976D+11	4.9517D+10
57.533	7/2(7)	1.868D–12	5/2(5)*	2.7073D+10	1.3690D+09
57.550	5/2(15)*	2.003D–12	5/2(8)	6.3994D+10	8.2046D+09
57.659	3/2(18)	1.614D–12	3/2(14)*	1.4910D+11	3.5876D+10
57.665	1/2(6)*	3.043D–12	3/2(3)	8.2118D+10	2.0520D+10
57.681	3/2(10)*	2.312D–12	5/2(2)	1.6859D+11	6.5708D+10
57.865	5/2(16)	1.795D–12	5/2(11)*	2.0363D+11	7.4445D+10
57.880	1/2(4)	3.941D–12	3/2(2)*	2.8475D+10	3.1952D+09
58.065	3/2(20)*	1.546D–12	3/2(11)	3.1784D+10	1.5617D+09
58.096	7/2(7)	1.868D–12	7/2(2)*	3.2123D+10	1.9274D+09
58.279	5/2(8)	2.856D–12	5/2(2)*	4.6691D+10	6.2269D+09
58.349	7/2(13)*	2.229D–12	9/2(3)	3.1558D+10	2.2195D+09
58.407	3/2(6)	4.188D–12	3/2(2)*	4.7891D+10	9.6044D+09

(continued on next page)

Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
58.553	3/2(16)*	1.532D–12	1/2(5)	4.7371D+10	3.4384D+09
58.620	9/2(4)	2.762D–12	9/2(1)*	8.7657D+10	2.1226D+10
58.911	5/2(13)	1.528D–12	5/2(5)*	1.4656D+11	3.2826D+10
58.945	5/2(6)	2.469D–12	5/2(1)*	3.8197D+10	3.6026D+09
59.084	9/2(6)*	2.125D–12	9/2(2)	5.5967D+10	6.6572D+09
59.128	5/2(19)*	2.254D–12	7/2(6)	5.6562D+10	7.2099D+09
59.312	5/2(18)*	1.958D–12	7/2(5)	7.8275D+10	1.1998D+10
59.320	3/2(3)*	2.836D–11	1/2(1)	1.9091D+10	1.0336D+10
59.329	5/2(17)*	1.765D–12	5/2(10)	3.4276D+10	2.0737D+09
59.502	5/2(13)	1.528D–12	7/2(2)*	3.4514D+10	1.8204D+09
59.536	1/2(11)	1.833D–12	3/2(9)*	2.9497D+10	1.5946D+09
59.666	5/2(9)*	9.918D–12	3/2(5)	6.0197D+10	3.5941D+10
59.761	3/2(17)*	1.666D–12	3/2(9)	3.8505D+10	2.4693D+09
59.825	5/2(15)*	2.003D–12	5/2(9)	2.5312D+10	1.2836D+09
59.935	5/2(5)	8.098D–12	3/2(2)*	1.9342D+10	3.0293D+09
60.002	3/2(4)	2.110D–12	3/2(1)*	4.7393D+11	4.7388D+11
60.069	3/2(19)	2.122D–12	1/2(9)*	2.7794D+10	1.6391D+09
60.151	3/2(14)	1.534D–12	3/2(7)*	6.9972D+10	7.5083D+09
60.274	3/2(10)	2.840D–12	5/2(3)*	8.7658D+10	2.1822D+10
60.377	7/2(8)	1.868D–12	5/2(6)*	2.7417D+10	1.4044D+09
60.423	1/2(10)	1.273D–12	3/2(8)*	2.8684D+10	1.0473D+09
60.501	7/2(11)*	2.195D–12	7/2(4)	7.9611D+10	1.3909D+10
60.876	5/2(14)	2.560D–12	7/2(3)*	7.2407D+10	1.3423D+10
61.152	1/2(6)	4.264D–12	3/2(5)*	3.0989D+10	4.0947D+09
61.244	1/2(12)*	2.090D–12	3/2(12)	7.9969D+10	1.3368D+10
61.465	1/2(3)	4.161D–12	3/2(1)*	2.3550D+11	2.3076D+11
61.529	7/2(4)*	3.300D–12	5/2(2)	3.1970D+10	3.3728D+09
61.562	1/2(5)*	1.752D–12	3/2(3)	3.3807D+11	2.0025D+11
61.577	5/2(4)*	5.256D–12	5/2(1)	3.7125D+10	7.2441D+09
61.617	1/2(2)	2.915D–12	1/2(1)*	3.3023D+11	3.1792D+11
61.640	1/2(11)	1.833D–12	1/2(5)*	2.4023D+10	1.0577D+09
61.657	3/2(17)*	1.666D–12	5/2(9)	6.9902D+10	8.1383D+09
61.850	7/2(3)	5.352D–12	7/2(1)*	3.4571D+10	6.3965D+09
61.881	5/2(17)*	1.765D–12	3/2(12)	2.4777D+10	1.0836D+09
61.892	1/2(4)	3.941D–12	3/2(3)*	1.9593D+11	1.5128D+11
61.943	1/2(12)*	2.090D–12	1/2(8)	5.4474D+10	6.2028D+09
61.999	3/2(11)*	1.466D–12	1/2(3)	1.1816D+11	2.0469D+10
62.133	5/2(7)*	1.741D–12	3/2(3)	4.2648D+11	3.1667D+11
62.468	3/2(21)*	2.921D–12	3/2(13)	4.2175D+10	5.1953D+09
62.496	3/2(6)	4.188D–12	3/2(3)*	9.4041D+10	3.7033D+10
62.619	3/2(8)	3.674D–12	3/2(4)*	3.1152D+10	3.5651D+09
62.802	1/2(13)*	1.686D–12	3/2(13)	2.6775D+10	1.2088D+09
62.931	1/2(10)*	1.494D–12	3/2(9)	1.6107D+11	3.8763D+10
63.019	1/2(5)	2.399D–12	1/2(2)*	7.7384D+10	1.4366D+10
63.131	3/2(8)	3.674D–12	5/2(2)*	5.1114D+10	9.5984D+09
63.214	3/2(18)*	1.585D–12	1/2(7)	1.0232D+11	1.6589D+10
63.259	5/2(18)*	1.958D–12	7/2(6)	6.6379D+10	8.6281D+09
63.285	7/2(8)	1.868D–12	7/2(3)*	5.2955D+10	5.2392D+09
63.308	5/2(15)*	2.003D–12	7/2(4)	3.5059D+10	2.4625D+09
63.433	1/2(3)*	3.791D–12	3/2(2)	2.0133D+11	1.5367D+11
63.437	3/2(19)*	1.804D–12	3/2(12)	2.8944D+10	1.5117D+09
63.467	5/2(13)*	1.622D–12	3/2(9)	8.5220D+10	1.1777D+10
63.535	5/2(20)	2.630D–12	7/2(11)*	2.2856D+10	1.3741D+09
63.543	3/2(2)*	9.923D–12	1/2(1)	4.9381D+10	2.4197D+10
63.562	3/2(11)*	1.466D–12	3/2(4)	4.8585D+11	3.4607D+11
63.573	7/2(7)	1.868D–12	5/2(6)*	3.3370D+10	2.0801D+09
63.749	3/2(16)	1.543D–12	3/2(10)*	1.5451D+11	3.6840D+10
63.814	3/2(9)*	2.369D–12	3/2(3)	8.8433D+10	1.8527D+10
63.914	5/2(13)	1.528D–12	3/2(8)*	1.0364D+11	1.6416D+10
63.974	1/2(9)	2.934D–12	3/2(8)*	1.8985D+11	1.0574D+11
64.002	3/2(15)	1.533D–12	5/2(7)*	2.1804D+11	7.2861D+10
64.048	1/2(10)	1.273D–12	3/2(9)*	9.2523D+10	1.0897D+10
64.059	7/2(1)	6.648D–12	5/2(1)*	1.1468D+11	8.7438D+10
64.204	3/2(2)	1.096D–11	1/2(1)*	8.3881D+10	7.7094D+10
64.248	5/2(5)	8.098D–12	3/2(3)*	4.1240D+10	1.3772D+10

Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
64.363	3/2(7)	2.321D–12	1/2(2)*	2.8891D+10	1.9374D+09
64.364	5/2(15)	1.658D–12	3/2(10)*	3.8120D+10	2.4086D+09
64.375	5/2(7)	4.481D–12	7/2(1)*	2.6697D+10	3.1936D+09
64.390	1/2(10)*	1.494D–12	3/2(10)	4.3452D+10	2.8210D+09
64.413	7/2(8)	1.868D–12	5/2(7)*	6.6283D+10	8.2082D+09
64.421	5/2(14)	2.560D–12	7/2(4)*	1.4535D+11	5.4095D+10
64.504	5/2(8)*	2.058D–12	5/2(3)	1.4527D+11	4.3425D+10
64.607	3/2(6)*	2.307D–12	3/2(2)	8.8338D+10	1.8005D+10
64.619	3/2(15)	1.533D–12	1/2(5)*	1.2130D+11	2.2550D+10
64.647	5/2(6)	2.469D–12	3/2(4)*	8.0369D+10	1.5949D+10
64.726	3/2(21)*	2.921D–12	1/2(9)	6.4072D+10	1.1991D+10
64.774	3/2(18)*	1.585D–12	5/2(10)	5.1125D+10	4.1420D+09
64.843	7/2(8)*	1.741D–12	5/2(9)	1.7298D+11	5.2082D+10
64.851	3/2(16)*	1.532D–12	3/2(9)	6.8977D+10	7.2903D+09
64.968	5/2(15)	1.658D–12	5/2(8)*	2.2246D+11	8.2031D+10
64.973	3/2(6)	4.188D–12	5/2(1)*	5.2843D+10	1.1693D+10
65.084	1/2(13)*	1.686D–12	1/2(9)	3.5677D+10	2.1461D+09
65.110	3/2(10)*	2.312D–12	5/2(3)	1.4288D+11	4.7190D+10
65.125	3/2(20)*	1.546D–12	5/2(12)	3.3551D+10	1.7402D+09
65.132	7/2(10)*	2.552D–12	5/2(10)	3.4511D+10	3.0391D+09
65.152	7/2(3)*	5.665D–12	5/2(2)	9.9136D+10	5.5673D+10
65.193	5/2(6)	2.469D–12	5/2(2)*	2.8027D+10	1.9396D+09
65.260	5/2(13)	1.528D–12	5/2(6)*	4.7844D+10	3.4981D+09
65.284	5/2(15)*	2.003D–12	5/2(10)	3.4098D+10	2.3293D+09
65.320	7/2(6)	4.818D–12	9/2(1)*	2.8904D+10	4.0252D+09
65.486	3/2(14)	1.534D–12	3/2(8)*	9.6008D+10	1.4136D+10
65.598	5/2(16)*	2.734D–12	7/2(5)	8.0386D+10	1.7667D+10
65.610	5/2(13)*	1.622D–12	5/2(9)	7.6544D+10	9.5011D+09
65.780	3/2(17)*	1.666D–12	1/2(7)	7.7097D+10	9.8999D+09
65.784	3/2(9)*	2.369D–12	5/2(2)	4.0104D+10	3.8102D+09
65.785	7/2(10)*	2.552D–12	9/2(2)	2.4091D+10	1.4810D+09
66.005	7/2(2)	5.372D–12	5/2(2)*	1.1868D+11	7.5670D+10
66.048	9/2(1)	8.612D–12	7/2(1)*	7.8312D+10	5.2818D+10
66.114	1/2(11)	1.833D–12	1/2(6)*	9.9532D+10	1.8156D+10
66.175	5/2(16)*	2.734D–12	5/2(11)	6.0324D+10	9.9494D+09
66.178	1/2(3)*	3.791D–12	1/2(2)	3.0151D+10	3.4464D+09
66.344	3/2(13)	3.618D–12	3/2(8)*	2.4775D+10	2.2208D+09
66.489	1/2(10)	1.273D–12	1/2(5)*	2.6205D+11	8.7408D+10
66.552	7/2(13)*	2.229D–12	7/2(7)	4.0205D+10	3.6024D+09
66.675	7/2(12)*	2.606D–12	7/2(6)	9.4352D+10	2.3197D+10
66.686	5/2(4)*	5.256D–12	3/2(2)	1.2991D+11	8.8705D+10
66.767	3/2(5)*	4.675D–12	3/2(1)	6.4727D+10	1.9586D+10
66.806	7/2(7)	1.868D–12	7/2(3)*	8.3728D+10	1.3095D+10
66.859	5/2(7)	4.481D–12	5/2(3)*	9.7214D+10	4.2348D+10
66.868	5/2(5)	8.098D–12	5/2(1)*	3.5474D+10	1.0190D+10
66.877	5/2(3)	5.107D–12	3/2(1)*	1.9581D+11	1.9581D+11
66.966	9/2(3)	4.470D–12	9/2(1)*	1.0600D+11	5.0223D+10
67.050	5/2(3)*	1.214D–11	3/2(1)	1.4093D+10	2.4113D+09
67.125	7/2(8)	1.868D–12	7/2(4)*	9.1516D+10	1.5647D+10
67.431	9/2(5)*	2.980D–12	9/2(3)	1.5615D+11	7.2667D+10
67.448	1/2(8)	2.038D–12	3/2(7)*	3.7928D+10	2.9318D+09
67.458	3/2(6)*	2.307D–12	1/2(2)	1.9143D+11	8.4549D+10
67.538	1/2(11)*	2.014D–12	3/2(11)	8.0272D+10	1.2978D+10
67.560	11/2(2)*	4.486D–12	9/2(3)	6.2941D+10	1.7770D+10
67.738	1/2(8)	2.038D–12	1/2(4)*	6.0234D+10	7.3942D+09
67.774	5/2(17)*	1.765D–12	5/2(12)	7.5839D+10	1.0152D+10
67.797	3/2(13)	3.618D–12	5/2(6)*	3.2628D+10	3.8520D+09
67.828	3/2(18)*	1.585D–12	3/2(12)	9.7321D+10	1.5009D+10
67.871	3/2(8)*	3.923D–12	3/2(3)	5.4202D+10	1.1524D+10
67.907	5/2(11)	2.304D–12	5/2(5)*	9.1424D+10	1.9259D+10
67.984	5/2(13)	1.528D–12	3/2(9)*	1.3282D+11	2.6960D+10
68.015	3/2(8)	3.674D–12	3/2(5)*	9.4922D+10	3.3101D+10
68.047	5/2(14)*	2.428D–12	3/2(11)	1.1400D+11	3.1556D+10
68.052	1/2(9)	2.934D–12	3/2(9)*	9.4777D+10	2.6351D+10

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Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
68.064	7/2(7)	1.868D–12	5/2(7)*	2.6687D+11	1.3303D+11
68.113	7/2(10)*	2.552D–12	7/2(5)	9.5298D+10	2.3174D+10
68.208	1/2(11)	1.833D–12	3/2(10)*	3.1475D+11	1.8157D+11
68.243	7/2(2)	5.372D–12	7/2(1)*	1.6163D+10	1.4035D+09
68.249	9/2(4)*	2.571D–12	7/2(4)	1.1833D+11	3.5993D+10
68.297	3/2(12)	2.300D–12	3/2(7)*	5.9104D+10	8.0339D+09
68.337	3/2(18)*	1.585D–12	5/2(11)	3.9420D+10	2.4625D+09
68.387	5/2(15)*	2.003D–12	3/2(12)	3.0498D+10	1.8635D+09
68.391	7/2(12)*	2.606D–12	5/2(12)	4.9832D+10	6.4706D+09
68.417	3/2(12)	2.300D–12	5/2(5)*	3.0767D+10	2.1770D+09
68.525	7/2(5)	3.465D–12	5/2(5)*	3.2355D+10	3.6273D+09
68.552	5/2(6)*	5.689D–12	5/2(2)	1.3976D+11	1.1111D+11
68.692	5/2(11)	2.304D–12	7/2(2)*	4.2660D+10	4.1933D+09
68.735	7/2(10)*	2.552D–12	5/2(11)	8.1460D+10	1.6933D+10
68.762	1/2(12)*	2.090D–12	3/2(13)	1.2555D+11	3.2947D+10
68.824	3/2(22)*	1.769D–12	1/2(11)	1.0377D+11	1.9049D+10
68.904	5/2(15)*	2.003D–12	5/2(11)	4.0894D+10	3.3504D+09
68.954	7/2(8)*	1.741D–12	7/2(4)	4.3099D+10	3.2331D+09
69.015	3/2(20)	2.572D–12	5/2(16)*	7.6879D+10	1.5203D+10
69.140	3/2(15)*	4.477D–12	5/2(6)	1.5164D+10	1.0296D+09
69.224	1/2(13)*	1.686D–12	1/2(10)	4.2591D+10	3.0584D+09
69.259	5/2(14)	2.560D–12	3/2(10)*	1.3848D+11	4.9101D+10
69.326	7/2(5)	3.465D–12	7/2(2)*	5.1823D+10	9.3056D+09
69.435	3/2(20)*	1.546D–12	5/2(13)	4.0373D+10	2.5199D+09
69.503	7/2(9)*	2.343D–12	5/2(10)	9.8625D+10	2.2787D+10
69.554	3/2(15)	1.533D–12	1/2(6)*	1.0231D+11	1.6041D+10
69.567	5/2(17)	1.807D–12	7/2(8)*	2.4336D+10	1.0703D+09
69.590	5/2(12)	3.084D–12	5/2(6)*	1.4087D+11	6.1198D+10
69.606	3/2(10)	2.840D–12	5/2(4)*	4.5055D+10	5.7650D+09
69.684	7/2(11)	2.510D–12	7/2(10)*	4.1720D+10	4.3686D+09
69.717	5/2(19)*	2.254D–12	7/2(8)	9.0941D+10	1.8638D+10
69.765	3/2(14)	1.534D–12	3/2(9)*	7.1813D+10	7.9086D+09
70.057	7/2(4)*	3.300D–12	5/2(3)	2.7034D+11	2.4118D+11
70.104	3/2(8)*	3.923D–12	5/2(2)	4.2570D+10	7.1086D+09
70.137	1/2(13)	2.041D–12	3/2(17)*	3.7896D+10	2.9307D+09
70.221	5/2(19)	2.206D–12	5/2(15)*	6.5333D+10	9.4171D+09
70.356	11/2(1)*	4.208D–12	9/2(2)	1.6913D+11	1.2037D+11
70.381	9/2(6)	2.739D–12	9/2(4)*	6.2336D+10	1.0644D+10
70.415	5/2(6)	2.469D–12	3/2(5)*	2.5135D+10	1.5600D+09
70.457	7/2(13)*	2.229D–12	7/2(8)	9.8015D+10	2.1410D+10
70.461	5/2(16)*	2.734D–12	7/2(6)	4.2070D+10	4.8390D+09
70.535	5/2(17)*	1.765D–12	3/2(14)	8.9627D+10	1.4179D+10
70.619	1/2(11)*	2.014D–12	1/2(8)	7.4597D+10	1.1208D+10
70.674	1/2(9)*	3.897D–12	3/2(9)	3.1286D+10	3.8143D+09
70.740	3/2(13)	3.618D–12	3/2(9)*	4.3046D+10	6.7043D+09
70.838	3/2(11)	2.536D–12	1/2(4)*	9.4756D+10	2.2767D+10
70.902	3/2(13)*	3.976D–12	5/2(5)	2.1276D+10	1.7996D+09
71.030	3/2(5)*	4.675D–12	5/2(1)	3.0802D+10	4.4354D+09
71.031	9/2(4)	2.762D–12	7/2(4)*	2.5470D+11	1.7920D+11
71.042	7/2(2)	5.372D–12	5/2(3)*	1.6794D+10	1.5153D+09
71.065	5/2(18)*	1.958D–12	7/2(7)	4.3996D+10	3.7904D+09
71.105	3/2(19)	2.122D–12	3/2(17)*	3.6266D+10	2.7907D+09
71.216	3/2(10)*	2.312D–12	1/2(3)	1.0122D+11	2.3684D+10
71.229	1/2(13)	2.041D–12	1/2(11)*	6.6953D+10	9.1482D+09
71.350	5/2(3)*	1.214D–11	5/2(1)	4.2674D+10	2.2109D+10
71.374	1/2(13)*	1.686D–12	3/2(15)	1.8867D+11	6.0015D+10
71.460	7/2(6)	4.818D–12	5/2(6)*	6.9348D+10	2.3171D+10
71.507	1/2(12)*	2.090D–12	1/2(9)	6.0851D+10	7.7401D+09
71.610	1/2(9)*	3.897D–12	1/2(6)	2.9057D+10	3.2903D+09
71.621	3/2(15)*	4.477D–12	3/2(8)	6.5224D+10	1.9047D+10
71.682	7/2(11)*	2.195D–12	5/2(12)	5.5085D+10	6.6591D+09
71.699	3/2(20)	2.572D–12	3/2(19)*	3.0430D+10	2.3818D+09
71.701	5/2(10)	2.320D–12	3/2(7)*	9.1226D+10	1.9309D+10
71.725	1/2(10)	1.273D–12	1/2(6)*	3.8104D+10	1.8482D+09
71.726	3/2(17)*	1.666D–12	1/2(8)	3.2133D+10	1.7197D+09

Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
71.864	3/2(21)	2.416D–12	5/2(18)*	1.3488D+11	4.3948D+10
71.915	9/2(2)	3.508D–12	7/2(2)*	1.4286D+11	7.1584D+10
72.004	7/2(10)	2.391D–12	7/2(9)*	3.9522D+10	3.7344D+09
72.149	5/2(8)	2.856D–12	5/2(4)*	3.5469D+10	3.5934D+09
72.254	5/2(2)*	1.221D–11	3/2(1)	7.9967D+10	7.8053D+10
72.455	5/2(17)*	1.765D–12	5/2(13)	7.0896D+10	8.8717D+09
72.517	5/2(8)*	2.058D–12	3/2(4)	2.0068D+11	8.2872D+10
72.519	1/2(9)*	3.897D–12	3/2(10)	1.2524D+11	6.1119D+10
72.558	9/2(7)	3.778D–12	9/2(5)*	9.1695D+10	3.1768D+10
72.564	3/2(19)*	1.804D–12	3/2(14)	1.4368D+11	3.7250D+10
72.614	3/2(15)*	4.477D–12	5/2(7)	2.2951D+10	2.3585D+09
72.695	5/2(12)	3.084D–12	3/2(9)*	2.6746D+10	2.2060D+09
72.791	9/2(2)	3.508D–12	9/2(1)*	1.8566D+10	1.2091D+09
72.852	3/2(18)	1.614D–12	3/2(16)*	6.6747D+10	7.1894D+09
72.872	5/2(12)*	6.235D–12	5/2(7)	6.1688D+10	2.3728D+10
72.895	5/2(19)*	2.254D–12	5/2(14)	1.0242D+11	2.3638D+10
72.945	1/2(6)	4.264D–12	3/2(6)*	3.6944D+10	5.8199D+09
73.001	1/2(8)*	6.194D–12	3/2(6)	3.8135D+10	9.0082D+09
73.159	7/2(8)	1.868D–12	5/2(8)*	2.0686D+11	7.9948D+10
73.161	7/2(12)*	2.606D–12	5/2(13)	8.1080D+10	1.7130D+10
73.165	3/2(13)*	3.976D–12	3/2(6)	4.7235D+10	8.8701D+09
73.238	3/2(22)*	1.769D–12	5/2(15)	1.0340D+11	1.8913D+10
73.435	9/2(6)*	2.125D–12	7/2(7)	7.4529D+10	1.1806D+10
73.482	5/2(12)	3.084D–12	7/2(3)*	3.5323D+10	3.8479D+09
73.507	9/2(6)*	2.125D–12	9/2(4)	6.9577D+10	1.0289D+10
73.509	5/2(10)*	7.357D–12	5/2(5)	3.8390D+10	1.0842D+10
73.534	3/2(16)	1.543D–12	3/2(11)*	2.0760D+11	6.6503D+10
73.543	3/2(10)	2.840D–12	1/2(3)*	4.5945D+10	5.9950D+09
73.650	5/2(17)	1.807D–12	3/2(17)*	5.4506D+10	5.3691D+09
73.651	1/2(6)*	3.043D–12	1/2(3)	1.4446D+11	6.3499D+10
73.691	3/2(21)*	2.921D–12	5/2(14)	1.3512D+11	5.3327D+10
73.707	3/2(19)	2.122D–12	5/2(15)*	4.3404D+10	3.9973D+09
73.731	3/2(13)	3.618D–12	1/2(5)*	3.1529D+10	3.5967D+09
73.809	9/2(2)*	9.079D–12	7/2(1)	5.7368D+10	2.9879D+10
73.842	1/2(8)*	6.194D–12	1/2(4)	9.0369D+10	5.0586D+10
73.853	7/2(6)*	3.324D–12	7/2(2)	4.0803D+10	5.5347D+09
73.930	7/2(11)	2.510D–12	9/2(5)*	2.3369D+10	1.3706D+09
73.944	1/2(12)	1.629D–12	1/2(10)*	7.7438D+10	9.7699D+09
74.031	5/2(19)	2.206D–12	7/2(11)*	3.0080D+10	1.9962D+09
74.051	3/2(22)*	1.769D–12	3/2(16)	2.7078D+11	1.2970D+11
74.085	3/2(20)*	1.546D–12	1/2(10)	1.8966D+11	5.5609D+10
74.240	5/2(17)	1.807D–12	5/2(14)*	2.9136D+10	1.5341D+09
74.284	3/2(14)*	2.260D–12	1/2(5)	3.2350D+10	2.3655D+09
74.354	5/2(15)	1.658D–12	3/2(11)*	2.4167D+11	9.6804D+10
74.368	3/2(19)	2.122D–12	3/2(18)*	5.8578D+10	7.2808D+09
74.388	7/2(4)	2.767D–12	5/2(5)*	7.3298D+10	1.4865D+10
74.416	7/2(1)*	2.099D–11	5/2(1)	4.0126D+10	3.3800D+10
74.426	5/2(16)*	2.734D–12	3/2(13)	4.7785D+10	6.2429D+09
74.456	5/2(4)	8.798D–12	3/2(2)*	2.9071D+10	7.4355D+09
74.503	1/2(6)	4.264D–12	1/2(3)*	1.2379D+11	6.5339D+10
74.655	5/2(17)*	1.765D–12	7/2(7)	2.7127D+10	1.2989D+09
74.723	3/2(20)	2.572D–12	1/2(12)*	5.9413D+10	9.0800D+09
74.752	5/2(8)	2.856D–12	3/2(6)*	1.9035D+11	1.0349D+11
74.793	7/2(3)*	5.665D–12	5/2(3)	1.6404D+10	1.5243D+09
74.814	7/2(3)	5.352D–12	5/2(4)*	1.1854D+11	7.5205D+10
74.896	7/2(6)*	3.324D–12	5/2(6)	7.7981D+10	2.0216D+10
74.918	3/2(21)*	2.921D–12	1/2(11)	3.3673D+10	3.3118D+09
75.165	5/2(20)	2.630D–12	7/2(13)*	6.5131D+10	1.1158D+10
75.271	7/2(5)*	1.066D–11	5/2(5)	3.8751D+10	1.6004D+10
75.311	7/2(9)	1.988D–12	5/2(13)*	8.7001D+10	1.5046D+10
75.355	5/2(11)*	2.387D–12	3/2(7)	2.0918D+10	1.0446D+09
75.399	1/2(13)*	1.686D–12	1/2(11)	1.1471D+11	2.2185D+10
75.571	7/2(6)	4.818D–12	7/2(3)*	2.3175D+10	2.5877D+09
75.657	5/2(15)*	2.003D–12	5/2(12)	4.0220D+10	3.2409D+09

(continued on next page)

Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
75.775	9/2(5)	2.154D–12	7/2(8)*	9.1531D+10	1.8044D+10
75.944	5/2(10)*	7.357D–12	3/2(6)	3.3556D+10	8.2834D+09
76.025	5/2(20)	2.630D–12	5/2(19)*	1.0794D+11	3.0645D+10
76.091	5/2(16)	1.795D–12	3/2(16)*	5.0003D+10	4.4889D+09
76.108	5/2(18)*	1.958D–12	3/2(15)	1.4123D+11	3.9056D+10
76.347	7/2(9)	1.988D–12	7/2(8)*	3.3828D+10	2.2747D+09
76.402	5/2(12)*	6.235D–12	7/2(3)	2.5014D+10	3.9014D+09
76.554	3/2(20)*	1.546D–12	3/2(15)	4.0402D+10	2.5235D+09
76.645	9/2(5)	2.154D–12	9/2(4)*	3.1695D+10	2.1636D+09
76.665	3/2(21)	2.416D–12	1/2(13)*	9.1151D+10	2.0071D+10
76.940	7/2(11)*	2.195D–12	5/2(13)	1.2395D+11	3.3714D+10
77.030	7/2(11)	2.510D–12	7/2(12)*	5.2774D+10	6.9902D+09
77.074	5/2(2)	8.222D–11	3/2(1)*	1.2163D+10	1.2163D+10
77.156	5/2(17)	1.807D–12	3/2(18)*	5.4118D+10	5.2929D+09
77.171	7/2(10)	2.391D–12	5/2(15)*	5.5308D+10	7.3133D+09
77.185	7/2(6)	4.818D–12	5/2(7)*	2.0123D+10	1.9510D+09
77.231	5/2(10)*	7.357D–12	7/2(1)	1.3065D+10	1.2557D+09
77.392	5/2(18)	2.131D–12	3/2(19)*	6.5340D+10	9.0985D+09
77.628	9/2(7)	3.778D–12	9/2(6)*	2.5234D+10	2.4059D+09
77.783	9/2(3)	4.470D–12	7/2(3)*	5.6612D+10	1.4327D+10
77.828	7/2(11)	2.510D–12	5/2(17)*	4.0815D+10	4.1811D+09
78.218	9/2(6)*	2.125D–12	7/2(8)	1.8691D+11	7.4252D+10
78.299	7/2(7)*	4.366D–12	7/2(3)	1.7042D+10	1.2679D+09
78.301	5/2(3)*	1.214D–11	3/2(2)	1.7187D+10	3.5861D+09
78.633	9/2(5)*	2.980D–12	7/2(7)	1.0778D+11	3.4624D+10
78.824	9/2(3)*	8.975D–12	7/2(3)	6.0647D+10	3.3012D+10
78.859	1/2(12)	1.629D–12	3/2(17)*	3.2545D+10	1.7257D+09
78.892	11/2(2)*	4.486D–12	9/2(4)	1.2774D+11	7.3192D+10
79.114	5/2(15)*	2.003D–12	3/2(14)	4.8861D+10	4.7830D+09
79.173	1/2(12)*	2.090D–12	3/2(15)	2.3545D+10	1.1588D+09
79.841	5/2(18)	2.131D–12	5/2(17)*	6.4349D+10	8.8245D+09
80.190	5/2(19)*	2.254D–12	3/2(16)	8.5079D+10	1.6313D+10
80.193	7/2(13)*	2.229D–12	5/2(15)	2.1883D+11	1.0672D+11
80.225	3/2(13)	3.618D–12	1/2(6)*	4.1131D+10	6.1211D+09
80.475	3/2(19)	2.122D–12	3/2(19)*	3.0340D+10	1.9532D+09
81.091	9/2(6)	2.739D–12	7/2(11)*	7.1665D+10	1.4068D+10
81.219	3/2(15)*	4.477D–12	1/2(6)	3.2556D+10	4.7457D+09
81.448	7/2(7)*	4.366D–12	5/2(8)	1.1365D+11	5.6393D+10
82.155	7/2(11)	2.510D–12	5/2(18)*	3.8420D+10	3.7049D+09
82.510	5/2(20)	2.630D–12	3/2(22)*	9.7360D+10	2.4933D+10
82.623	5/2(19)	2.206D–12	3/2(20)*	8.4171D+10	1.5631D+10
82.947	1/2(13)	2.041D–12	1/2(12)*	3.6752D+10	2.7565D+09
83.910	3/2(20)	2.572D–12	3/2(21)*	4.2923D+10	4.7392D+09
84.064	9/2(2)*	9.079D–12	9/2(1)	2.5335D+10	5.8271D+09
84.156	1/2(12)*	2.090D–12	1/2(11)	2.4303D+10	1.2347D+09
84.718	7/2(12)*	2.606D–12	5/2(14)	2.4254D+10	1.5329D+09
84.913	3/2(21)	2.416D–12	3/2(22)*	5.7671D+10	8.0347D+09
84.966	3/2(20)	2.572D–12	5/2(19)*	2.6001D+10	1.7390D+09
85.760	9/2(6)	2.739D–12	7/2(12)*	2.8921D+10	2.2911D+09
86.030	1/2(13)	2.041D–12	3/2(20)*	3.3868D+10	2.3409D+09
87.156	9/2(7)	3.778D–12	7/2(13)*	1.1028D+11	4.5952D+10
87.558	7/2(10)	2.391D–12	5/2(17)*	3.0371D+10	2.2053D+09
88.377	5/2(1)*	1.101D–10	5/2(1)	4.2500D+09	1.9879D+09
90.091	7/2(6)	4.818D–12	5/2(8)*	2.7261D+10	3.5808D+09
90.355	7/2(11)	2.510D–12	5/2(19)*	2.3952D+10	1.4399D+09
93.412	3/2(3)*	2.836D–11	5/2(1)	8.6912D+09	2.1421D+09
95.383	3/2(2)*	9.923D–12	3/2(1)	1.0592D+10	1.1133D+09
96.375	1/2(5)	2.399D–12	3/2(7)*	2.0767D+10	1.0346D+09
97.533	3/2(5)	1.169D–11	3/2(3)*	1.9448D+10	4.4222D+09
99.698	5/2(5)	8.098D–12	5/2(4)*	1.1925D+10	1.1515D+09
99.943	9/2(1)	8.612D–12	9/2(1)*	2.3448D+10	4.7352D+09
101.270	5/2(6)	2.469D–12	7/2(2)*	3.0148D+10	2.2443D+09
103.702	3/2(5)	1.169D–11	5/2(1)*	4.0219D+10	1.8913D+10
104.328	3/2(2)*	9.923D–12	5/2(1)	3.1206D+10	9.6633D+09
104.407	5/2(4)	8.798D–12	7/2(1)*	3.7232D+10	1.2197D+10

Table 7 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
105.057	7/2(2)	5.372D–12	9/2(1)*	2.8462D+10	4.3521D+09
105.694	3/2(3)*	2.836D–11	3/2(2)	7.1808D+09	1.4623D+09
107.283	7/2(6)*	3.324D–12	9/2(2)	2.8211D+10	2.6457D+09
108.709	1/2(9)*	3.897D–12	1/2(9)	2.5959D+10	2.6260D+09
110.088	5/2(7)	4.481D–12	5/2(6)*	1.5281D+10	1.0464D+09
111.104	5/2(4)	8.798D–12	5/2(3)*	1.9448D+10	3.3276D+09
111.889	5/2(4)	8.798D–12	3/2(5)*	1.3530D+10	1.6107D+09
112.716	7/2(7)*	4.366D–12	9/2(3)	1.7924D+10	1.4026D+09
113.808	9/2(3)*	8.975D–12	9/2(3)	1.1732D+10	1.2353D+09
117.854	3/2(15)*	4.477D–12	5/2(12)	1.8345D+10	1.5068D+09
118.866	1/2(3)*	3.791D–12	1/2(3)	1.6277D+10	1.0044D+09
118.900	9/2(3)*	8.975D–12	7/2(6)	1.9982D+10	3.5837D+09
121.372	3/2(5)	1.169D–11	1/2(2)*	9.2823D+09	1.0074D+09
122.265	1/2(1)	8.700D–11	1/2(1)*	1.1491D+10	1.1489D+10
124.126	5/2(12)*	6.235D–12	3/2(13)	1.3252D+10	1.0950D+09
124.291	1/2(7)*	3.225D–12	1/2(7)	1.9520D+10	1.2287D+09
124.795	1/2(8)*	6.194D–12	3/2(11)	1.4628D+10	1.3255D+09
130.318	5/2(1)	2.021D–10	3/2(1)*	4.9485D+09	4.9485D+09
130.821	9/2(2)*	9.079D–12	7/2(5)	1.2975D+10	1.5285D+09
154.238	5/2(1)*	1.101D–10	3/2(3)	3.2130D+09	1.1361D+09

Table 8

Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{40+}$  (Si-like) ions. See page 655 for Explanation of Tables

Occ	$J(\text{No})P$	E	$\tau$
22000	0(1)	0	
21100	1(1)	595,487	5.955D–07
21100	2(1)	646,721	8.290D–05
20200	2(2)	1,279,395	1.990D–07
20200	0(2)	1,391,729	1.370D–07
12100	2(1)*	1,417,831	1.169D–10
12100	1(1)*	1,577,544	1.038D–11
21010	2(2)*	1,779,932	7.162D–10
11200	2(3)*	1,917,844	5.341D–10
21001	3(1)*	1,979,153	9.441D–11
21010	1(2)*	1,994,272	1.648D–12
21001	2(4)*	2,106,886	6.011D–12
11200	3(2)*	2,128,563	1.239D–11
11200	0(1)*	2,162,316	1.298D–11
11200	1(3)*	2,226,461	7.412D–12
11200	2(5)*	2,257,252	4.170D–12
11200	1(4)*	2,309,977	2.222D–12
20110	2(7)*	2,584,398	1.610D–12
20101	2(6)*	2,585,651	7.182D–11
20110	3(3)*	2,587,049	2.596D–12
20110	1(5)*	2,587,761	1.947D–12
20101	4(1)*	2,593,372	4.290D–07
20110	0(2)*	2,599,675	2.252D–12
12010	1(2)	2,619,663	5.574D–11
12010	2(3)	2,650,610	5.867D–11
20101	3(4)*	2,796,197	3.839D–12
20101	1(6)*	2,821,938	5.558D–12
12001	3(1)	2,825,716	1.829D–11
12001	2(4)	2,884,305	1.757D–11
10300	2(8)*	2,905,186	2.655D–12
10300	1(7)*	3,047,160	1.606D–12
11110	2(5)	3,085,628	1.198D–11
11110	0(3)	3,120,579	4.490D–11
11110	1(3)	3,139,253	8.322D–11
11110	3(2)	3,162,322	5.688D–11
02200	2(6)	3,167,256	6.464D–12
02200	0(4)	3,187,421	5.995D–12
11110	4(1)	3,232,268	1.786D–10
11101	4(2)	3,271,090	6.670D–10
11110	2(7)	3,316,976	6.272D–12
11110	3(3)	3,326,987	3.789D–12
11110	2(8)	3,365,895	3.350D–12
11110	1(4)	3,374,676	2.640D–12
11101	5(1)	3,376,651	1.327D–10
11101	2(9)	3,384,409	4.445D–12
11101	1(5)	3,396,680	6.514D–12
11110	3(4)	3,415,005	4.125D–12
11101	3(5)	3,443,613	8.609D–12
11110	1(6)	3,458,254	2.924D–12
11101	2(10)	3,505,362	4.635D–12
11101	4(3)	3,516,521	1.489D–11
11101	3(6)	3,525,632	3.745D–12
11110	1(7)	3,545,746	1.582D–12
11110	0(5)	3,557,355	2.888D–12
11101	3(7)	3,585,626	4.278D–12
11101	4(4)	3,586,432	5.707D–12
11110	2(11)	3,588,267	1.632D–12
11101	1(8)	3,603,678	6.940D–12
11101	1(9)	3,671,712	4.404D–12
11101	3(8)	3,681,780	2.880D–12
11101	2(12)	3,684,586	3.836D–12
11101	0(6)	3,702,300	2.522D–12
11101	2(13)	3,732,338	1.972D–12

Table 8 (continued)

Occ	$J(\text{No})P$	E	$\tau$
01300	2(14)	3,823,527	2.440D–12
20020	2(15)	3,870,665	1.168D–12
01300	1(10)	3,874,736	1.526D–12
10201	4(5)	3,878,278	9.074D–12
10210	3(9)	3,883,643	2.422D–12
10210	1(11)	3,898,934	2.448D–12
10210	2(16)	3,902,792	2.287D–12
20020	0(7)	3,960,661	1.482D–12
20011	4(6)	3,972,651	4.578D–12
10201	5(2)	4,003,489	1.496D–11
10201	0(8)	4,023,864	2.172D–12
20011	3(10)	4,044,310	1.810D–12
20002	2(17)	4,082,457	2.983D–12
20011	2(18)	4,089,934	1.680D–12
20011	1(12)	4,104,400	1.557D–12
10210	4(7)	4,123,077	1.901D–12
10201	1(13)	4,162,259	2.105D–12
02110	3(11)	4,178,382	4.066D–12
02110	2(9)*	4,202,450	1.030D–11
20002	4(8)	4,204,096	2.511D–12
10210	1(14)	4,205,591	1.875D–12
10210	0(9)	4,210,132	1.294D–12
10210	2(19)	4,235,422	1.682D–12
10210	3(12)	4,242,374	1.840D–12
02110	0(3)*	4,259,377	7.182D–12
10210	1(15)	4,260,966	1.289D–12
02110	3(5)*	4,269,434	5.707D–12
10210	1(8)*	4,285,615	4.893D–12
10201	3(13)	4,288,697	1.880D–12
10201	2(20)	4,293,727	1.157D–12
10201	4(9)	4,313,093	2.254D–12
10201	2(21)	4,356,973	3.332D–12
11020	2(10)*	4,374,924	8.056D–12
20002	0(10)	4,396,063	1.900D–12
10201	3(14)	4,396,484	1.677D–12
10201	2(22)	4,401,356	1.614D–12
02101	4(2)*	4,408,552	6.046D–12
02101	2(11)*	4,433,143	5.344D–12
11020	3(6)*	4,440,641	9.160D–12
10201	1(16)	4,447,337	1.488D–12
02101	3(7)*	4,497,762	5.814D–12
10201	2(23)	4,529,721	1.317D–12
02101	1(9)*	4,569,218	6.086D–12
11020	0(4)*	4,571,141	2.702D–12
11011	3(8)*	4,579,116	7.166D–12
11011	4(3)*	4,582,372	1.155D–11
11011	2(12)*	4,588,634	5.193D–12
11020	1(10)*	4,592,852	2.322D–12
11020	1(11)*	4,622,596	2.804D–12
11011	1(12)*	4,646,376	4.085D–12
11020	2(13)*	4,648,450	1.852D–12
11011	5(1)*	4,681,844	9.673D–12
11011	0(5)*	4,691,805	5.463D–12
11011	4(4)*	4,692,550	7.958D–12
11011	3(9)*	4,692,970	5.301D–12
11011	2(14)*	4,694,524	5.332D–12
01210	1(13)*	4,701,072	3.728D–12
00400	0(11)	4,709,839	9.676D–13
11002	4(5)*	4,768,530	4.079D–12
11011	3(10)*	4,771,431	2.410D–12
11011	2(15)*	4,811,538	2.002D–12
11002	4(6)*	4,819,933	4.413D–12
01201	3(11)*	4,833,004	2.834D–12
11011	2(16)*	4,842,924	2.447D–12
01210	2(17)*	4,853,179	3.554D–12

Table 8 (continued)

Occ	$J(\text{No})P$	E	$\tau$
11002	5(2)*	4,854,062	1.023D–11
11011	1(14)*	4,862,986	1.984D–12
11002	2(18)*	4,871,832	3.436D–12
01210	3(12)*	4,888,406	3.664D–12
11002	4(7)*	4,893,435	4.800D–12
11002	3(13)*	4,896,129	3.514D–12
01210	1(15)*	4,934,907	1.866D–12
11002	2(19)*	4,938,464	3.158D–12
11002	3(14)*	4,942,174	3.391D–12
01210	4(8)*	4,943,188	3.215D–12
11002	0(6)*	4,955,388	4.994D–12
11002	1(16)*	4,963,800	4.045D–12
01210	0(7)*	5,009,765	1.745D–12
01210	2(20)*	5,021,920	2.042D–12
11002	1(17)*	5,029,703	3.476D–12
01201	4(9)*	5,040,863	3.048D–12
01201	5(3)*	5,052,303	4.775D–12
01210	2(21)*	5,062,189	1.808D–12
01210	3(15)*	5,073,428	2.045D–12
01210	1(18)*	5,084,225	1.646D–12
01201	4(10)*	5,105,640	2.590D–12
11002	3(16)*	5,137,690	2.001D–12
01201	2(22)*	5,155,038	3.370D–12
11002	0(8)*	5,158,950	2.439D–12
10120	0(9)*	5,166,301	1.755D–12
01210	1(20)*	5,167,786	1.585D–12
10120	1(19)*	5,174,371	1.517D–12
10120	2(23)*	5,174,393	1.636D–12
10120	3(17)*	5,181,296	1.647D–12
10111	4(11)*	5,191,815	2.255D–12
01201	3(18)*	5,196,184	2.910D–12
11002	1(21)*	5,199,154	2.549D–12
10111	5(4)*	5,208,741	2.887D–12
01201	3(19)*	5,228,857	2.337D–12
10111	4(12)*	5,260,790	2.183D–12
01201	2(24)*	5,268,863	2.106D–12
10111	3(20)*	5,273,950	2.875D–12
01201	2(26)*	5,282,581	1.618D–12
10120	2(25)*	5,285,937	1.534D–12
01201	1(22)*	5,289,671	1.626D–12
10111	1(23)*	5,320,975	1.616D–12
10111	2(27)*	5,351,980	1.975D–12
10102	4(13)*	5,363,789	2.932D–12
10111	3(21)*	5,364,499	2.533D–12
10111	1(24)*	5,372,613	1.756D–12
10111	0(10)*	5,376,777	2.095D–12
10111	2(28)*	5,390,538	1.718D–12
10111	3(22)*	5,390,703	2.000D–12
02020	2(24)	5,423,761	9.684D–12
10102	3(23)*	5,429,956	3.408D–12
10120	1(25)*	5,430,759	1.454D–12
10111	4(14)*	5,435,020	3.188D–12
10102	4(15)*	5,437,274	2.374D–12
10111	5(5)*	5,441,032	3.320D–12
10120	2(29)*	5,443,377	2.074D–12
10120	3(24)*	5,477,985	1.474D–12
10120	3(25)*	5,488,502	1.432D–12
10120	2(30)*	5,491,895	1.631D–12
10102	5(6)*	5,502,064	2.859D–12
10111	4(16)*	5,505,310	1.846D–12
10111	2(31)*	5,512,379	1.613D–12
10102	1(26)*	5,533,526	1.751D–12
02020	0(12)	5,543,551	8.772D–12
10111	3(26)*	5,546,924	1.505D–12
10111	2(32)*	5,579,307	1.503D–12

Table 8 (continued)

Occ	$J(\text{No})P$	E	$\tau$
10102	4(17)*	5,587,071	2.514D–12
10111	5(7)*	5,591,836	1.786D–12
10111	2(33)*	5,592,437	2.312D–12
02011	3(15)	5,600,761	7.486D–12
10120	1(27)*	5,607,761	1.019D–12
10102	3(27)*	5,614,739	2.839D–12
10102	0(11)*	5,637,293	1.853D–12
10111	2(34)*	5,641,197	1.581D–12
10102	5(8)*	5,651,351	3.173D–12
10111	1(28)*	5,655,408	1.346D–12
10111	3(28)*	5,663,504	1.342D–12
02011	2(25)	5,669,991	6.993D–12
10111	4(18)*	5,677,386	1.614D–12
10111	1(29)*	5,682,997	1.278D–12
10102	2(35)*	5,687,990	2.265D–12
02011	1(17)	5,691,232	6.391D–12
10111	4(10)	5,699,500	6.032D–12
00310	0(12)*	5,731,917	1.015D–12
10111	0(13)*	5,735,216	1.275D–12
10111	1(30)*	5,745,526	1.284D–12
10102	3(30)*	5,753,770	1.990D–12
10102	4(19)*	5,761,020	1.583D–12
10102	2(37)*	5,772,014	1.616D–12
10102	3(31)*	5,821,065	1.371D–12
10102	2(38)*	5,839,402	1.550D–12
10102	1(31)*	5,841,290	1.440D–12
02002	4(11)	5,846,455	6.167D–12
00310	1(32)*	5,858,479	1.056D–12
00301	4(20)*	5,876,072	1.411D–12
02002	2(26)	5,883,317	5.560D–12
00310	3(32)*	5,893,539	1.131D–12
00310	2(39)*	5,917,313	9.662D–13
10102	1(33)*	5,942,224	1.281D–12
00301	2(40)*	5,950,716	1.265D–12
00301	3(33)*	5,964,277	1.295D–12
01120	2(27)	5,973,318	3.567D–12
01120	1(18)	6,007,805	2.863D–12
01120	3(16)	6,009,887	3.618D–12
01120	4(12)	6,030,210	4.113D–12
02002	0(13)	6,044,916	4.163D–12
01111	4(13)	6,104,583	5.376D–12
01111	5(3)	6,118,543	6.344D–12
01111	3(17)	6,127,459	4.446D–12
00301	1(34)*	6,148,971	9.721D–13
01111	1(19)	6,151,639	2.841D–12
01111	2(28)	6,154,787	3.142D–12
01111	2(29)	6,160,069	3.184D–12
01111	0(14)	6,161,988	4.551D–12
01120	1(20)	6,187,139	1.793D–12
01111	3(18)	6,193,106	2.889D–12
01120	2(30)	6,200,012	2.072D–12
01111	4(14)	6,209,129	3.972D–12
01120	1(21)	6,209,302	1.940D–12
01120	2(31)	6,237,984	1.935D–12
01120	3(19)	6,242,541	1.587D–12
01120	0(15)	6,246,602	1.305D–12
01102	5(4)	6,249,194	3.847D–12
01111	2(32)	6,276,142	3.117D–12
01111	4(15)	6,276,781	3.037D–12
01111	3(20)	6,276,787	2.803D–12
01111	5(5)	6,321,496	4.234D–12
01111	4(16)	6,329,364	2.066D–12

(continued on next page)

Table 8 (continued)

Occ	$J(\text{No})P$	E	$\tau$
01102	3(21)	6,338,376	2.947D–12
01111	3(22)	6,351,698	2.461D–12
01111	1(22)	6,354,674	1.683D–12
01102	2(33)	6,363,430	2.805D–12
01111	1(23)	6,367,928	2.253D–12
01102	4(17)	6,376,818	3.144D–12
01111	2(34)	6,378,966	2.296D–12
01111	3(23)	6,389,986	1.967D–12
01102	5(6)	6,394,134	3.453D–12
01111	1(24)	6,405,424	2.358D–12
01111	2(35)	6,409,692	1.925D–12
01102	5(7)	6,436,838	3.732D–12
01111	3(24)	6,437,132	2.131D–12
01111	3(25)	6,452,280	2.250D–12
01102	4(18)	6,467,989	3.480D–12
01102	3(26)	6,469,035	2.352D–12
10030	1(25)	6,474,930	1.404D–12
01102	1(26)	6,493,781	1.775D–12
01111	2(36)	6,494,778	1.553D–12
01111	4(19)	6,496,375	2.024D–12
01102	0(16)	6,513,361	2.156D–12
10030	2(37)	6,524,578	1.263D–12
01111	2(38)	6,557,437	1.869D–12
01111	1(27)	6,562,324	1.793D–12
01102	4(20)	6,562,656	2.455D–12
10021	3(27)	6,587,685	1.539D–12
01102	3(28)	6,591,481	2.569D–12
01102	1(28)	6,592,041	2.846D–12
01102	2(39)	6,598,689	2.349D–12
01102	3(29)	6,622,350	2.054D–12
01102	2(40)	6,623,713	2.014D–12
01111	0(17)	6,634,982	1.485D–12
10021	4(21)	6,636,006	1.615D–12
10021	2(41)	6,639,808	1.692D–12
10021	1(29)	6,652,774	1.314D–12
10021	5(8)	6,653,430	1.754D–12
01102	2(42)	6,679,948	2.110D–12
10021	3(30)	6,694,044	1.535D–12
10021	4(22)	6,696,653	1.813D–12
10021	0(18)	6,702,915	1.224D–12
10021	1(30)	6,703,445	1.488D–12
10021	2(43)	6,715,695	1.365D–12
01102	1(31)	6,719,009	1.565D–12
10021	3(31)	6,749,411	1.484D–12
10003	5(9)	6,767,790	2.205D–12
10021	4(23)	6,783,333	1.658D–12
10012	4(24)	6,789,925	2.321D–12
10012	3(32)	6,793,998	1.813D–12
10021	2(44)	6,795,520	1.555D–12
00211	2(45)	6,823,069	1.574D–12
00211	3(33)	6,838,134	1.634D–12
10012	5(10)	6,838,246	2.956D–12
10012	1(32)	6,858,450	1.485D–12
00220	0(19)	6,860,416	1.007D–12
10012	1(33)	6,869,128	1.563D–12
00211	2(46)	6,870,303	2.105D–12
10012	4(25)	6,888,380	1.882D–12
10021	2(47)	6,896,197	1.465D–12
10012	3(34)	6,910,859	1.832D–12
00211	5(11)	6,917,169	2.236D–12
10003	4(26)	6,922,768	2.824D–12
10012	3(35)	6,935,471	1.411D–12
00220	2(48)	6,940,801	1.026D–12
00220	1(34)	6,942,248	1.234D–12
00220	3(36)	6,947,883	1.383D–12

Table 8 (continued)

Occ	$J(\text{No})P$	E	$\tau$
00211	4(27)	6,951,115	1.477D–12
10012	0(20)	6,952,043	1.457D–12
10012	2(49)	6,959,220	1.450D–12
00211	4(28)	6,965,336	1.358D–12
00211	1(35)	6,969,998	1.261D–12
10003	5(12)	6,973,153	1.773D–12
00211	3(37)	6,987,687	1.442D–12
00220	2(50)	7,007,668	1.323D–12
10003	2(51)	7,015,569	1.638D–12
00211	5(13)	7,032,198	1.925D–12
00211	2(52)	7,039,562	1.487D–12
10003	3(38)	7,052,978	1.879D–12
00211	2(53)	7,066,123	1.690D–12
00211	4(29)	7,068,482	1.317D–12
10003	1(36)	7,077,689	2.070D–12
00220	3(39)	7,077,881	1.204D–12
00211	3(40)	7,108,176	1.348D–12
00211	1(37)	7,109,949	1.112D–12
00211	2(54)	7,120,862	1.158D–12
00220	2(55)	7,121,945	1.152D–12
00202	4(30)	7,124,011	1.731D–12
00211	4(31)	7,140,228	1.829D–12
00211	0(21)	7,180,595	9.862D–13
00211	1(38)	7,181,903	1.295D–12
00211	3(41)	7,190,819	1.227D–12
10012	2(56)	7,203,279	1.460D–12
00202	5(14)	7,207,767	1.840D–12
00220	0(22)	7,210,459	1.012D–12
00211	1(39)	7,217,962	1.230D–12
00202	3(42)	7,237,867	1.419D–12
00202	4(32)	7,238,729	1.595D–12
00202	2(57)	7,242,755	1.829D–12
01030	2(41)*	7,256,037	3.343D–12
10003	2(58)	7,266,184	1.079D–12
00202	4(33)	7,267,363	1.462D–12
00202	2(59)	7,278,460	1.400D–12
00211	1(40)	7,290,814	1.055D–12
00202	3(43)	7,295,689	1.292D–12
00211	4(34)	7,310,816	1.242D–12
00211	2(60)	7,354,200	9.862D–13
00202	3(44)	7,362,094	1.230D–12
01021	3(34)*	7,373,827	4.294D–12
00202	0(23)	7,374,346	2.087D–12
00202	1(41)	7,381,700	1.123D–12
01003	1(35)*	7,394,932	2.400D–12
00211	2(42)*	7,396,817	3.793D–12
00202	2(61)	7,401,619	1.326D–12
00211	4(21)*	7,424,999	4.746D–12
00211	0(14)*	7,442,631	3.837D–12
00211	5(9)*	7,447,215	5.550D–12
00211	1(36)*	7,460,852	1.825D–12
00202	2(62)	7,486,350	1.122D–12
01012	3(35)*	7,557,852	2.650D–12
00220	2(43)*	7,567,104	1.635D–12
01012	4(22)*	7,568,549	5.133D–12
00211	2(44)*	7,600,305	3.021D–12
01012	5(10)*	7,606,720	5.546D–12
00202	0(24)	7,613,399	9.746D–13
01012	3(36)*	7,622,412	2.931D–12
00211	1(37)*	7,625,681	2.039D–12
00003	0(15)*	7,638,245	3.989D–12
01012	2(45)*	7,638,830	3.831D–12
00220	4(23)*	7,640,155	1.634D–12
00220	1(38)*	7,653,490	1.996D–12
00220	3(37)*	7,663,966	1.776D–12

Table 8 (continued)

Occ	$J(\text{No})P$	E	$\tau$
01012	4(24)*	7,694,437	2.987D–12
01021	2(46)*	7,705,718	2.705D–12
01012	3(38)*	7,720,740	3.529D–12
01012	4(25)*	7,778,024	2.429D–12
01012	5(11)*	7,782,503	2.853D–12
01012	3(39)*	7,800,185	1.959D–12
01012	2(47)*	7,806,366	2.732D–12
01012	1(39)*	7,807,668	1.626D–12
01003	4(26)*	7,828,282	3.171D–12
01003	5(12)*	7,831,568	4.735D–12
01012	2(48)*	7,843,395	2.330D–12
01012	3(40)*	7,863,493	1.936D–12
01003	1(40)*	7,888,916	2.795D–12
01003	2(49)*	7,943,252	3.306D–12
01003	3(41)*	7,997,550	3.101D–12
01003	2(50)*	7,998,418	2.671D–12
01012	1(41)*	8,007,551	1.936D–12
00130	0(16)*	8,033,235	9.663D–13
00130	1(42)*	8,072,868	1.028D–12
00130	2(51)*	8,087,049	1.091D–12
00130	3(42)*	8,088,545	1.189D–12
00121	4(27)*	8,091,504	1.426D–12
00121	5(13)*	8,094,558	2.188D–12
00121	3(43)*	8,122,722	1.239D–12
00121	2(52)*	8,138,290	1.246D–12
00121	1(43)*	8,169,931	1.169D–12
00121	4(28)*	8,173,568	1.629D–12
00121	0(17)*	8,179,524	1.173D–12
00121	3(44)*	8,200,234	1.305D–12
00121	2(53)*	8,205,750	1.382D–12
00121	4(29)*	8,212,843	1.634D–12
00112	3(45)*	8,243,017	1.710D–12
00121	5(14)*	8,253,910	2.236D–12
00112	1(44)*	8,266,403	1.464D–12
00112	4(30)*	8,271,616	1.848D–12
00112	2(54)*	8,276,280	1.577D–12
00121	2(55)*	8,281,897	1.332D–12
00121	5(15)*	8,290,162	1.850D–12
00112	4(31)*	8,297,279	1.533D–12
00121	3(46)*	8,309,969	1.329D–12
00112	3(47)*	8,325,702	1.731D–12
00121	4(32)*	8,331,686	1.556D–12
00112	2(56)*	8,339,743	1.335D–12
00112	3(48)*	8,356,508	1.354D–12
00103	5(16)*	8,359,615	2.566D–12
00112	2(57)*	8,360,198	1.276D–12
00112	1(45)*	8,360,850	1.132D–12
00103	0(18)*	8,361,503	2.686D–12
00121	1(46)*	8,366,416	1.158D–12
00112	4(33)*	8,388,778	1.733D–12
00112	4(34)*	8,394,500	1.392D–12
00121	2(58)*	8,401,392	1.182D–12
00103	3(49)*	8,404,591	1.488D–12
00112	5(17)*	8,411,569	2.168D–12
00112	5(18)*	8,425,843	1.557D–12
00112	3(50)*	8,438,469	1.613D–12
00103	2(59)*	8,441,093	1.599D–12
00112	1(47)*	8,457,736	1.272D–12
00121	2(60)*	8,460,672	1.283D–12
00121	3(51)*	8,468,593	1.292D–12
00112	4(35)*	8,501,260	1.520D–12
00112	2(61)*	8,508,912	1.755D–12
00112	3(52)*	8,514,564	1.381D–12
00103	4(36)*	8,531,012	1.858D–12
00112	1(48)*	8,531,663	1.301D–12

Table 8 (continued)

Occ	$J(\text{No})P$	E	$\tau$
00112	3(53)*	8,561,130	1.827D–12
00112	0(19)*	8,566,503	1.150D–12
00121	3(54)*	8,580,000	1.221D–12
00121	1(49)*	8,581,905	1.355D–12
00112	5(19)*	8,584,256	1.657D–12
00103	2(62)*	8,587,998	1.821D–12
00112	1(50)*	8,593,741	1.299D–12
00103	2(63)*	8,599,926	1.293D–12
00112	0(20)*	8,613,855	1.723D–12
00112	4(37)*	8,635,899	1.845D–12
00103	4(38)*	8,654,791	1.538D–12
00121	1(51)*	8,666,743	1.183D–12
00112	3(55)*	8,676,760	1.669D–12
00112	2(64)*	8,680,592	1.341D–12
00103	3(56)*	8,715,585	1.435D–12
00112	2(65)*	8,721,473	1.186D–12
00103	1(52)*	8,728,088	1.610D–12
00040	0(25)	9,339,087	9.314D–13
00031	1(42)	9,425,582	1.075D–12
00031	2(63)	9,477,389	1.167D–12
00031	4(35)	9,491,931	1.218D–12
00031	3(45)	9,503,340	1.205D–12
00022	4(36)	9,579,029	1.439D–12
00022	0(26)	9,583,613	1.225D–12
00022	3(46)	9,604,696	1.364D–12
00022	5(15)	9,614,311	1.941D–12
00031	2(64)	9,614,519	1.216D–12
00022	1(43)	9,651,871	1.288D–12
00022	4(37)	9,665,718	1.556D–12
00022	3(47)	9,685,888	1.364D–12
00022	2(65)	9,687,794	1.335D–12
00013	4(38)	9,722,583	1.616D–12
00013	3(48)	9,758,336	1.577D–12
00022	2(66)	9,760,158	1.351D–12
00013	5(16)	9,771,252	2.111D–12
00013	1(44)	9,796,282	1.526D–12
00022	4(39)	9,800,419	1.510D–12
00022	2(67)	9,833,050	1.476D–12
00013	0(27)	9,848,458	1.443D–12
00013	3(49)	9,854,968	1.655D–12
00013	2(68)	9,862,409	1.440D–12
00013	3(50)	9,935,517	1.718D–12
00004	4(40)	9,935,925	1.894D–12
00013	1(45)	9,949,586	1.526D–12
00004	2(69)	9,958,771	1.760D–12
00013	4(41)	9,964,115	1.904D–12
00022	0(28)	9,966,969	1.466D–12
00004	2(70)	10,074,724	1.660D–12
00004	0(29)	10,243,592	1.513D–12

Table 9

Transitions with rates higher than  $5 \times 10^{10} \text{ s}^{-1}$  in  $\text{Xe}^{40+}$  (Si-like) ions. See page 656 for Explanation of Tables

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
47.064	0(6)	2.522D–12	1(1)*	1.5995D+11	6.4508D+10
47.830	2(15)	1.168D–12	2(2)*	3.0286D+11	1.0712D+11
48.044	1(13)*	3.728D–12	1(2)	1.2617D+11	5.9350D+10
48.955	0(22)	1.012D–12	1(20)*	2.2860D+11	5.2869D+10
49.090	1(36)*	1.825D–12	2(24)	2.9757D+11	1.6157D+11
49.271	0(8)	2.172D–12	1(2)*	4.4714D+11	4.3431D+11
49.333	0(9)*	1.755D–12	1(3)	3.0576D+11	1.6404D+11
49.372	0(16)*	9.663D–13	1(18)	2.3821D+11	5.4830D+10
49.578	3(40)*	1.936D–12	4(11)	1.6453D+11	5.2419D+10
49.733	2(11)	1.632D–12	1(1)*	2.4890D+11	1.0107D+11
49.823	1(19)*	1.517D–12	2(6)	2.3540D+11	8.4078D+10
49.896	0(2)*	2.252D–12	1(1)	4.4413D+11	4.4413D+11
49.929	3(20)*	2.875D–12	4(2)	2.0579D+11	1.2174D+11
49.954	0(18)	1.224D–12	1(13)*	2.2732D+11	6.3257D+10
50.035	1(18)*	1.646D–12	2(5)	2.2037D+11	7.9920D+10
50.054	2(13)*	1.852D–12	2(3)	4.3496D+11	3.5044D+11
50.062	1(12)	1.557D–12	2(4)*	2.5735D+11	1.0312D+11
50.138	4(7)	1.901D–12	3(2)*	1.9395D+11	7.1525D+10
50.144	1(2)*	1.648D–12	0(1)	6.0305D+11	5.9923D+11
50.145	4(6)*	4.413D–12	3(1)	1.1120D+11	5.4574D+10
50.158	2(32)*	1.503D–12	3(7)	1.9154D+11	5.5125D+10
50.163	4(6)	4.578D–12	3(1)*	1.9532D+11	1.7466D+11
50.194	1(5)*	1.947D–12	1(1)	4.5472D+11	4.0263D+11
50.198	2(64)	1.216D–12	3(36)*	2.0617D+11	5.1688D+10
50.259	4(12)*	2.183D–12	4(2)	2.2789D+11	1.1335D+11
50.279	2(7)*	1.610D–12	1(1)	2.0154D+11	6.5388D+10
50.296	0(20)	1.457D–12	1(16)*	2.4102D+11	8.4661D+10
50.334	2(31)*	1.613D–12	3(6)	2.6502D+11	1.1329D+11
50.357	2(15)*	2.002D–12	3(1)	3.4786D+11	2.4226D+11
50.379	2(16)	2.287D–12	2(3)*	2.2693D+11	1.1780D+11
50.386	1(20)	1.793D–12	2(9)*	3.0891D+11	1.7111D+11
50.412	0(9)	1.294D–12	1(3)*	2.8216D+11	1.0304D+11
50.416	1(38)*	1.996D–12	2(25)	2.0395D+11	8.3042D+10
50.427	2(18)	1.680D–12	2(4)*	1.7291D+11	5.0242D+10
50.468	3(23)	1.967D–12	4(2)*	2.1118D+11	8.7708D+10
50.477	1(11)	2.448D–12	2(3)*	3.2089D+11	2.5209D+11
50.483	3(31)	1.484D–12	4(5)*	2.2779D+11	7.7023D+10
50.496	1(20)*	1.585D–12	0(4)	1.7764D+11	5.0026D+10
50.503	0(10)*	2.095D–12	1(5)	2.5464D+11	1.3585D+11
50.510	0(5)	2.888D–12	1(1)*	2.1212D+11	1.2994D+11
50.539	1(14)*	1.984D–12	2(4)	4.0569D+11	3.2661D+11
50.679	1(10)*	2.322D–12	1(2)	3.4386D+11	2.7457D+11
50.681	3(19)	1.587D–12	3(5)*	2.9109D+11	1.3449D+11
50.697	1(25)*	1.454D–12	1(6)	2.3588D+11	8.0882D+10
50.710	1(11)*	2.804D–12	2(3)	3.2125D+11	2.8932D+11
50.721	5(8)	1.754D–12	5(1)*	2.1072D+11	7.7871D+10
50.731	1(35)*	2.400D–12	2(24)	1.6435D+11	6.4829D+10
50.799	2(31)	1.935D–12	3(5)*	2.4738D+11	1.1840D+11
50.808	1(7)	1.582D–12	1(1)*	5.2336D+11	4.3334D+11
50.850	2(9)	4.445D–12	2(1)*	1.6268D+11	1.1764D+11
50.855	0(7)	1.482D–12	1(2)*	6.3454D+11	5.9673D+11
50.856	2(43)*	1.635D–12	3(15)	4.0709D+11	2.7099D+11
50.904	3(37)*	1.776D–12	4(10)	3.5389D+11	2.2248D+11
50.955	2(44)	1.555D–12	3(11)*	2.3132D+11	8.3184D+10
50.995	0(15)	1.305D–12	1(8)*	5.6546D+11	4.1715D+11
51.032	4(11)*	2.255D–12	4(1)	1.8830D+11	7.9967D+10
51.032	0(27)	1.443D–12	1(40)*	1.9498D+11	5.4853D+10
51.036	0(28)	1.466D–12	1(41)*	1.8931D+11	5.2530D+10
51.048	2(25)*	1.534D–12	3(3)	2.3896D+11	8.7603D+10
51.056	2(16)*	2.447D–12	2(4)	2.2820D+11	1.2741D+11
51.103	1(4)	2.640D–12	2(1)*	3.5772D+11	3.3786D+11
51.133	1(37)*	2.039D–12	2(25)	1.9279D+11	7.5780D+10
51.184	3(39)*	1.959D–12	4(11)	2.1177D+11	8.7832D+10
51.243	0(4)*	2.702D–12	1(2)	3.5072D+11	3.3230D+11

Table 9 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
51.316	3(11)*	2.834D-12	2(4)	1.6312D+11	7.5406D+10
51.333	2(8)	3.350D-12	2(1)*	2.4736D+11	2.0497D+11
51.395	3(10)*	2.410D-12	3(1)	3.2112D+11	2.4850D+11
51.436	0(25)	9.314D-13	1(35)*	3.9730D+11	1.4701D+11
51.529	4(23)*	1.634D-12	4(10)	3.2971D+11	1.7760D+11
51.538	3(3)*	2.596D-12	2(1)	3.8020D+11	3.7523D+11
51.608	2(7)*	1.610D-12	2(1)	4.1932D+11	2.8305D+11
51.771	4(25)*	2.429D-12	4(11)	1.8569D+11	8.3736D+10
51.812	3(48)	1.577D-12	4(26)*	2.1214D+11	7.0977D+10
51.934	0(19)	1.007D-12	1(15)*	5.7403D+11	3.3187D+11
51.966	1(39)*	1.626D-12	2(26)	3.6436D+11	2.1587D+11
52.042	1(22)	1.683D-12	2(11)*	2.7538D+11	1.2765D+11
52.061	4(16)	2.066D-12	4(2)*	2.4907D+11	1.2818D+11
52.063	4(15)*	2.374D-12	4(3)	1.5686D+11	5.8417D+10
52.114	4(16)*	1.846D-12	4(4)	1.6828D+11	5.2266D+10
52.199	3(10)	1.810D-12	3(2)*	2.2113D+11	8.8527D+10
52.379	3(3)	3.789D-12	2(1)*	2.3303D+11	2.0575D+11
52.507	3(9)	2.422D-12	3(1)*	2.6106D+11	1.6507D+11
52.549	1(44)*	1.464D-12	2(33)	1.9212D+11	5.4035D+10
52.627	0(9)	1.294D-12	1(4)*	2.0863D+11	5.6335D+10
52.656	4(5)	9.074D-12	3(1)*	1.0228D+11	9.4930D+10
53.133	1(25)	1.404D-12	1(10)*	2.7473D+11	1.0599D+11
53.241	0(25)	9.314D-13	1(36)*	5.6932D+11	3.0188D+11
53.294	2(15)	1.168D-12	1(2)*	4.7152D+11	2.5963D+11
53.301	2(37)	1.263D-12	2(13)*	2.5540D+11	8.2408D+10
53.555	1(24)*	1.756D-12	2(10)	1.7139D+11	5.1581D+10
53.807	1(42)	1.075D-12	2(43)*	4.1599D+11	1.8601D+11
53.845	0(12)*	1.015D-12	1(10)	5.3798D+11	2.9370D+11
54.002	4(35)	1.218D-12	4(23)*	3.2551D+11	1.2906D+11
54.127	0(19)*	1.150D-12	1(31)	2.4684D+11	7.0071D+10
54.168	0(16)*	9.663D-13	1(20)	4.8897D+11	2.3103D+11
54.311	1(29)	1.314D-12	2(15)*	2.0285D+11	5.4082D+10
54.350	0(18)	1.224D-12	1(14)*	2.9583D+11	1.0714D+11
54.577	2(41)*	3.343D-12	2(24)	2.2899D+11	1.7529D+11
54.582	5(4)*	2.887D-12	5(1)	2.6290D+11	1.9954D+11
55.058	3(27)	1.539D-12	3(10)*	2.1287D+11	6.9716D+10
55.565	1(19)*	1.517D-12	1(4)	2.4016D+11	8.7513D+10
55.865	3(6)*	9.160D-12	2(3)	8.8706D+10	7.2080D+10
56.308	0(26)	1.225D-12	1(39)*	3.3629D+11	1.3858D+11
56.569	1(7)*	1.606D-12	2(2)	3.5629D+11	2.0390D+11
56.972	2(10)*	8.056D-12	1(2)	1.0558D+11	8.9803D+10
57.686	2(23)	1.317D-12	3(4)*	3.3159D+11	1.4482D+11
58.149	4(9)	2.254D-12	4(1)*	1.8522D+11	7.7317D+10
58.502	2(20)	1.157D-12	2(7)*	3.7807D+11	1.6542D+11
58.986	3(13)	1.880D-12	4(1)*	2.9021D+11	1.5836D+11
59.583	1(6)	2.924D-12	2(2)*	3.0891D+11	2.7906D+11
59.766	1(15)	1.289D-12	1(5)*	2.7468D+11	9.7246D+10
60.123	1(4)*	2.222D-12	2(1)	3.0379D+11	2.0505D+11
60.144	0(11)	9.676D-13	1(7)*	1.0052D+12	9.7780D+11
60.315	3(12)	1.840D-12	2(7)*	1.9080D+11	6.6994D+10
60.407	1(7)*	1.606D-12	0(2)	2.6547D+11	1.1320D+11
60.411	3(12)	1.840D-12	3(3)*	1.9177D+11	6.7682D+10
60.563	3(33)*	1.295D-12	4(9)	2.3743D+11	7.2999D+10
60.666	2(19)	1.682D-12	3(3)*	1.7779D+11	5.3178D+10
61.159	3(4)	4.125D-12	2(2)*	2.2707D+11	2.1267D+11
61.241	1(18)	2.863D-12	2(10)*	1.8542D+11	9.8446D+10
61.313	1(3)*	7.412D-12	1(1)	1.0812D+11	8.6649D+10
61.443	0(12)*	1.015D-12	1(12)	2.9118D+11	8.6039D+10
61.509	2(8)*	2.655D-12	2(2)	3.7338D+11	3.7011D+11
61.523	1(16)	1.488D-12	1(6)*	3.0249D+11	1.3613D+11
61.638	0(9)	1.294D-12	1(5)*	2.6246D+11	8.9158D+10
61.731	1(14)	1.875D-12	2(6)*	1.8616D+11	6.4980D+10
61.757	1(34)*	9.721D-13	2(23)	5.9341D+11	3.4233D+11
61.811	3(25)*	1.432D-12	2(15)	2.0495D+11	6.0173D+10

(continued on next page)

Table 9 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
62.084	4(8)	2.511D–12	4(1)*	2.6591D+11	1.7753D+11
62.091	2(5)*	4.170D–12	2(1)	2.0073D+11	1.6802D+11
62.117	0(4)	5.995D–12	1(1)*	1.2475D+11	9.3299D+10
62.121	3(18)*	2.910D–12	4(4)	1.4323D+11	5.9688D+10
62.395	0(22)	1.012D–12	1(27)*	2.9943D+11	9.0705D+10
62.489	3(14)	1.677D–12	3(4)*	2.5203D+11	1.0652D+11
62.735	2(11)	1.632D–12	1(2)*	1.8557D+11	5.6185D+10
62.785	3(11)	4.066D–12	2(6)*	1.6966D+11	1.1705D+11
63.390	1(1)*	1.038D–11	0(1)	7.8696D+10	6.4275D+10
63.527	0(10)	1.900D–12	1(6)*	4.7973D+11	4.3728D+11
63.823	0(1)*	1.298D–11	1(1)	7.7039D+10	7.7039D+10
63.846	2(14)	2.440D–12	2(5)*	2.1514D+11	1.1296D+11
63.908	1(10)	1.526D–12	1(4)*	2.2259D+11	7.5611D+10
63.980	4(20)*	1.411D–12	4(9)	2.9829D+11	1.2558D+11
64.142	5(9)	2.205D–12	5(4)*	1.6546D+11	6.0372D+10
64.156	0(6)*	4.994D–12	1(5)	1.2751D+11	8.1194D+10
64.229	4(19)*	1.583D–12	4(8)	4.0339D+11	2.5759D+11
64.297	0(8)*	2.439D–12	1(8)	2.4516D+11	1.4657D+11
64.410	0(5)*	5.463D–12	1(3)	1.0334D+11	5.8341D+10
64.453	0(7)*	1.745D–12	1(6)	3.8092D+11	2.5326D+11
64.828	1(6)*	5.558D–12	2(2)	9.9445D+10	5.4970D+10
65.097	5(3)	6.344D–12	4(3)*	9.5780D+10	5.8202D+10
65.103	4(7)	1.901D–12	3(3)*	3.1221D+11	1.8534D+11
65.145	2(21)	3.332D–12	1(6)*	1.5246D+11	7.7449D+10
65.229	0(23)	2.087D–12	1(31)*	1.6497D+11	5.6793D+10
65.258	3(31)*	1.371D–12	3(13)	2.3523D+11	7.5843D+10
65.376	0(13)*	1.275D–12	1(14)	3.2059D+11	1.3101D+11
65.437	4(8)*	3.215D–12	3(4)	1.5025D+11	7.2584D+10
65.602	1(17)*	3.476D–12	2(10)	1.3785D+11	6.6040D+10
65.700	2(62)	1.122D–12	3(33)*	2.6764D+11	8.0343D+10
65.924	4(9)	2.254D–12	3(4)*	2.2761D+11	1.1675D+11
65.928	3(4)*	3.839D–12	2(2)	2.4671D+11	2.3367D+11
65.965	2(39)*	9.662D–13	2(22)	2.8286D+11	7.7306D+10
65.969	0(23)	2.087D–12	1(32)*	1.8486D+11	7.1313D+10
66.025	1(21)*	2.549D–12	2(12)	1.7465D+11	7.7744D+10
66.164	2(4)*	6.011D–12	1(1)	1.6361D+11	1.6090D+11
66.386	4(33)	1.462D–12	4(19)*	2.0765D+11	6.3060D+10
66.837	2(22)	1.614D–12	2(8)*	3.5212D+11	2.0009D+11
66.895	1(33)*	1.281D–12	1(16)	3.5543D+11	1.6181D+11
67.056	3(14)	1.677D–12	2(8)*	2.7501D+11	1.2683D+11
67.401	0(16)	2.156D–12	1(17)*	1.6757D+11	6.0530D+10
67.451	2(23)	1.317D–12	1(7)*	3.5749D+11	1.6832D+11
67.484	3(2)*	1.239D–11	2(1)	7.6472D+10	7.2461D+10
67.586	4(20)*	1.411D–12	3(14)	2.5909D+11	9.4748D+10
67.625	3(7)	4.278D–12	2(4)*	2.0567D+11	1.8098D+11
67.672	4(32)	1.595D–12	4(19)*	1.8404D+11	5.4021D+10
67.795	0(11)*	1.853D–12	1(13)	2.3680D+11	1.0388D+11
67.814	3(43)	1.292D–12	3(31)*	2.1312D+11	5.8699D+10
68.085	5(7)*	1.786D–12	4(7)	3.6889D+11	2.4298D+11
68.219	5(3)*	4.775D–12	4(4)	1.4075D+11	9.4603D+10
68.286	0(24)	9.746D–13	1(34)*	8.5709D+11	7.1598D+11
68.446	4(16)*	1.846D–12	3(10)	2.0195D+11	7.5267D+10
68.522	2(61)	1.326D–12	1(33)*	1.9925D+11	5.2636D+10
68.593	4(4)	5.707D–12	3(2)*	1.2898D+11	9.4932D+10
68.655	0(19)*	1.150D–12	1(37)	4.4351D+11	2.2621D+11
68.717	4(9)*	3.048D–12	3(7)	1.4344D+11	6.2708D+10
68.838	5(18)*	1.557D–12	5(12)	1.8737D+11	5.4673D+10
68.923	2(61)	1.326D–12	2(40)*	2.3401D+11	7.2605D+10
68.986	5(1)*	9.673D–12	4(1)	7.6880D+10	5.7175D+10
69.188	2(24)*	2.106D–12	2(14)	1.8079D+11	6.8845D+10
69.192	1(9)	4.404D–12	1(3)*	1.1165D+11	5.4905D+10
69.486	1(34)*	9.721D–13	0(11)	3.0488D+11	9.0364D+10
69.595	2(60)	9.862D–13	2(39)*	3.6037D+11	1.2808D+11
69.686	4(18)*	1.614D–12	3(12)	2.2030D+11	7.8329D+10
69.695	0(14)*	3.837D–12	1(18)	1.2012D+11	5.5360D+10

Table 9 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
69.708	3(33)*	1.295D–12	2(23)	2.9912D+11	1.1586D+11
70.179	1(53)*	1.197D–12	2(62)	4.2005D+11	2.1127D+11
70.199	3(8)	2.880D–12	2(5)*	1.3557D+11	5.2932D+10
70.276	2(32)	3.117D–12	2(17)*	1.3251D+11	5.4724D+10
70.420	4(3)*	1.155D–11	3(2)	6.5809D+10	5.0034D+10
70.916	5(2)	1.496D–11	4(1)*	6.6854D+10	6.6854D+10
70.988	4(17)*	2.514D–12	3(11)	1.4350D+11	5.1765D+10
71.031	2(26)*	1.618D–12	1(10)	1.8976D+11	5.8273D+10
72.076	4(38)*	1.538D–12	4(33)	2.6913D+11	1.1141D+11
72.199	0(28)	1.466D–12	1(49)*	2.5482D+11	9.5181D+10
72.553	5(5)	4.234D–12	4(8)*	1.3049D+11	7.2091D+10
73.138	2(65)*	1.186D–12	2(60)	2.3446D+11	6.5170D+10
73.601	4(19)	2.024D–12	3(16)*	1.8425D+11	6.8701D+10
73.811	5(13)	1.925D–12	4(18)*	2.0595D+11	8.1663D+10
74.273	1(52)*	1.610D–12	1(41)	1.9553D+11	6.1563D+10
74.724	5(8)*	3.173D–12	4(9)	1.5505D+11	7.6279D+10
74.773	2(62)	1.122D–12	1(34)*	2.7941D+11	8.7561D+10
75.058	0(29)	1.513D–12	1(53)*	4.4832D+11	3.0415D+11
75.092	5(14)	1.840D–12	4(20)*	2.0862D+11	8.0088D+10
78.527	5(19)*	1.657D–12	4(34)	2.5539D+11	1.0807D+11

Table 10

Energy levels ( $\text{cm}^{-1}$ ) and lifetimes (s) in  $\text{Xe}^{39+}$  (P-like) ions. See page 656 for Explanation of Tables

Occ	$J(\text{No})P$	E	$\tau$
22100	3/2(1)*	0	
21200	3/2(2)*	573,389	0.000D+00
21200	5/2(1)*	638,966	0.000D+00
21200	1/2(1)*	720,017	0.000D+00
22010	3/2(1)	1,223,096	5.475D-10
20300	3/2(3)*	1,302,295	7.513D-05
12200	5/2(1)	1,361,632	1.868D-10
22001	5/2(2)	1,501,901	1.150D-11
12200	1/2(1)	1,597,366	1.272D-11
12200	3/2(2)	1,606,135	8.130D-12
21110	5/2(3)	1,794,105	4.778D-10
21110	3/2(3)	1,800,776	4.163D-11
21110	1/2(2)	1,806,089	2.579D-10
21110	7/2(1)	1,856,401	2.031D-08
21101	3/2(4)	1,925,245	1.034D-09
21101	7/2(2)	1,942,547	4.509D-09
21101	5/2(4)	1,973,092	5.326D-11
21101	9/2(1)	2,010,667	0.000D+00
21110	5/2(5)	2,014,298	2.069D-12
21110	1/2(3)	2,048,567	1.777D-12
21110	3/2(5)	2,050,091	1.250D-12
11300	3/2(6)	2,133,261	7.830D-12
21101	7/2(3)	2,136,338	8.987D-12
21101	5/2(6)	2,152,472	3.688D-12
21101	1/2(4)	2,161,973	5.348D-12
21101	3/2(7)	2,210,527	5.195D-12
11300	5/2(7)	2,241,091	3.735D-12
11300	3/2(8)	2,339,413	2.333D-12
11300	1/2(5)	2,356,899	2.497D-12
20201	7/2(4)	2,594,532	2.162D-11
20201	1/2(6)	2,609,756	4.958D-12
20210	5/2(8)	2,611,201	1.825D-12
20210	3/2(9)	2,618,421	1.474D-12
20201	9/2(2)	2,620,056	0.000D+00
12110	5/2(2)*	2,625,162	7.367D-11
20210	1/2(7)	2,628,051	2.036D-12
12110	3/2(4)*	2,635,854	5.189D-11
20210	7/2(5)	2,638,820	2.511D-12
12110	1/2(2)*	2,640,367	8.922D-11
12110	7/2(1)*	2,659,328	1.023D-10
20210	3/2(10)	2,729,513	1.997D-12
12110	3/2(5)*	2,755,626	1.418D-11
12101	9/2(1)*	2,774,073	8.827D-11
20201	5/2(9)	2,781,879	6.154D-10
12101	5/2(3)*	2,855,370	1.545D-11
12110	5/2(4)*	2,859,378	6.551D-12
20201	3/2(11)	2,869,828	3.459D-12
12110	1/2(3)*	2,881,102	5.812D-12
12101	3/2(6)*	2,891,902	1.736D-11
20201	5/2(10)	2,900,902	2.782D-12
12101	7/2(2)*	2,931,102	1.237D-11
12101	7/2(3)*	3,011,503	6.580D-12
12101	1/2(4)*	3,039,234	1.167D-11
10400	1/2(8)	3,045,352	1.467D-12
12101	5/2(5)*	3,070,773	5.666D-12
21020	5/2(6)*	3,083,254	4.223D-12
12101	3/2(7)*	3,087,077	5.573D-12
11210	3/2(8)*	3,121,433	3.587D-11
11210	1/2(5)*	3,140,232	9.232D-11
11210	5/2(7)*	3,149,971	2.317D-11
21011	7/2(4)*	3,171,782	4.330D-11
02300	3/2(9)*	3,225,303	4.671D-12
11210	9/2(2)*	3,242,038	1.308D-10

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
11201	7/2(5)*	3,261,716	1.809D-11
21020	1/2(6)*	3,263,706	1.897D-12
21020	3/2(10)*	3,307,271	1.336D-12
21011	5/2(8)*	3,316,068	5.630D-12
21011	7/2(6)*	3,327,456	6.921D-12
11201	9/2(3)*	3,335,971	1.876D-11
21011	3/2(11)*	3,358,284	2.276D-12
11210	5/2(9)*	3,370,134	1.967D-12
11210	3/2(12)*	3,379,301	2.390D-12
21011	1/2(7)*	3,386,373	3.803D-12
11201	9/2(4)*	3,386,571	3.898D-11
11201	1/2(8)*	3,393,722	1.111D-11
11210	7/2(7)*	3,397,734	2.626D-12
11210	9/2(5)*	3,416,290	5.452D-12
11210	3/2(13)*	3,434,363	2.729D-12
11201	11/2(1)*	3,445,577	2.163D-11
21002	5/2(10)*	3,449,688	5.733D-12
11210	7/2(8)*	3,462,984	3.058D-12
11210	1/2(9)*	3,466,288	2.837D-12
21002	3/2(14)*	3,473,375	3.971D-12
11210	5/2(11)*	3,493,816	3.410D-12
21011	3/2(16)*	3,557,157	1.446D-12
11201	1/2(10)*	3,502,840	5.779D-12
11210	3/2(15)*	3,503,960	2.401D-12
21011	5/2(12)*	3,511,739	1.852D-12
21002	7/2(9)*	3,543,215	4.323D-12
21011	3/2(16)*	3,557,157	1.446D-12
11201	5/2(13)*	3,557,525	5.462D-12
11210	7/2(10)*	3,571,443	2.335D-12
11210	5/2(14)*	3,573,546	1.845D-12
21002	9/2(6)*	3,575,079	5.151D-12
11201	3/2(17)*	3,589,031	2.869D-12
11201	5/2(15)*	3,595,481	2.768D-12
11201	7/2(11)*	3,597,314	3.460D-12
11210	1/2(11)*	3,620,870	1.238D-12
21002	3/2(18)*	3,632,844	1.929D-12
11201	5/2(16)*	3,664,024	1.934D-12
11201	9/2(7)*	3,669,470	4.853D-12
11210	1/2(12)*	3,672,026	1.535D-12
12101	7/2(12)*	3,676,264	3.107D-12
11201	3/2(19)*	3,677,276	2.340D-12
11210	5/2(17)*	3,691,612	2.172D-12
11210	3/2(20)*	3,691,678	1.533D-12
11201	7/2(13)*	3,719,096	1.998D-12
12101	5/2(18)*	3,723,167	5.544D-12
12101	1/2(13)*	3,736,923	2.831D-12
11201	7/2(14)*	3,742,300	2.424D-12
12101	3/2(21)*	3,751,001	2.854D-12
12110	5/2(19)*	3,778,189	2.265D-12
11201	3/2(22)*	3,810,419	1.799D-12
12110	1/2(14)*	3,816,593	2.103D-12
12101	5/2(20)*	3,853,471	1.638D-12
12020	3/2(12)	3,882,144	4.186D-11
11201	3/2(23)*	3,882,373	1.671D-12
12020	5/2(11)	3,927,060	3.992D-11
12101	1/2(15)*	3,934,529	1.484D-12
20120	7/2(15)*	3,943,644	1.404D-12
12101	11/2(2)*	3,948,803	4.955D-12
20120	1/2(16)*	3,951,416	1.094D-12
12101	5/2(22)*	3,952,844	1.010D-12
10310	5/2(21)*	3,955,303	3.719D-12
10310	3/2(24)*	3,955,504	1.711D-12
20111	9/2(8)*	3,959,222	1.692D-12
20120	3/2(25)*	3,963,290	9.544D-13
11111	3/2(20)	4,604,752	4.562D-12
20111	7/2(16)*	3,964,812	1.932D-12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
01400	1/2(17)*	3,997,886	1.308D–12
20111	7/2(17)*	4,003,349	1.578D–12
20102	5/2(23)*	4,006,907	4.233D–12
20111	5/2(24)*	4,019,116	1.627D–12
12020	1/2(9)	4,021,757	3.067D–11
20120	3/2(26)*	4,052,730	8.525D–13
12011	7/2(6)	4,067,396	1.736D–11
10301	9/2(9)*	4,072,762	6.671D–12
20102	7/2(18)*	4,072,943	8.375D–12
20102	11/2(3)*	4,107,298	6.121D–12
12011	5/2(12)	4,109,670	1.586D–11
20111	7/2(19)*	4,135,497	1.507D–12
12011	3/2(13)	4,138,209	1.236D–11
20111	5/2(25)*	4,155,252	1.314D–12
20102	1/2(18)*	4,156,769	2.438D–12
12011	9/2(3)	4,169,252	9.199D–12
12011	3/2(14)	4,177,140	1.540D–11
12011	5/2(13)	4,190,845	9.596D–12
20111	3/2(27)*	4,192,330	1.307D–12
20111	9/2(10)*	4,193,110	1.742D–12
10310	1/2(19)*	4,198,873	1.104D–12
12011	1/2(10)	4,204,949	1.376D–11
20111	3/2(28)*	4,207,276	1.390D–12
12011	7/2(7)	4,211,222	1.066D–11
20102	7/2(20)*	4,227,534	1.837D–12
10301	3/2(29)*	4,229,095	2.207D–12
20111	5/2(26)*	4,232,757	1.588D–12
20102	9/2(11)*	4,258,656	1.927D–12
20102	5/2(27)*	4,262,939	2.595D–12
20111	3/2(30)*	4,269,399	1.090D–12
20111	1/2(20)*	4,271,077	1.505D–12
10310	5/2(28)*	4,301,627	1.168D–12
11120	3/2(15)	4,310,398	8.608D–12
10310	7/2(21)*	4,312,102	1.639D–12
12002	9/2(4)	4,312,342	1.191D–11
20102	3/2(31)*	4,323,170	1.873D–12
12002	7/2(8)	4,351,867	8.365D–12
12002	5/2(14)	4,353,437	6.475D–12
20102	7/2(22)*	4,363,234	1.677D–12
12002	5/2(15)	4,389,268	6.599D–12
12002	3/2(16)	4,396,038	9.046D–12
20102	5/2(29)*	4,396,379	1.667D–12
11120	1/2(11)	4,405,258	8.581D–12
10310	5/2(30)*	4,416,715	1.072D–12
10310	3/2(32)*	4,419,782	1.280D–12
02210	7/2(9)	4,423,668	4.130D–12
11120	3/2(17)	4,427,598	4.770D–12
02210	5/2(16)	4,440,098	3.531D–12
10310	1/2(21)*	4,450,026	7.940D–13
10301	7/2(23)*	4,450,391	1.669D–12
11120	7/2(10)	4,458,671	7.070D–12
02201	1/2(12)	4,462,230	6.496D–12
02210	1/2(13)	4,467,412	2.823D–12
20102	3/2(33)*	4,480,882	1.493D–12
10301	5/2(31)*	4,486,734	1.505D–12
11111	9/2(5)	4,489,554	1.049D–11
02210	3/2(18)	4,499,240	3.732D–12
11111	7/2(11)	4,531,549	1.261D–11
02201	9/2(6)	4,532,641	6.352D–12
11111	5/2(17)	4,552,283	4.919D–11
11120	9/2(7)	4,558,019	8.285D–12
02201	7/2(12)	4,577,251	4.355D–12
10301	1/2(22)*	4,589,649	1.168D–12
11120	3/2(19)	4,590,518	2.914D–12
11111	1/2(14)	4,610,628	5.909D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
11111	5/2(18)	4,614,988	4.488D–12
10301	3/2(34)*	4,622,419	1.033D–12
11120	5/2(19)	4,634,888	3.115D–12
11120	3/2(21)	4,654,133	2.446D–12
02201	5/2(20)	4,656,666	3.563D–12
11111	1/2(15)	4,658,445	3.777D–12
12002	1/2(16)	4,666,675	3.084D–12
11111	7/2(13)	4,667,042	2.737D–12
11120	3/2(22)	4,671,771	2.357D–12
11120	7/2(14)	4,680,495	2.853D–12
02201	5/2(21)	4,684,612	2.311D–12
02201	5/2(22)	4,686,004	2.896D–12
02201	3/2(23)	4,701,392	2.907D–12
11111	7/2(15)	4,702,858	4.574D–12
11120	5/2(23)	4,705,783	3.298D–12
11120	1/2(17)	4,714,387	1.776D–12
11111	9/2(8)	4,726,920	4.661D–12
11120	5/2(24)	4,733,807	4.599D–12
02201	3/2(24)	4,738,688	3.762D–12
11120	7/2(16)	4,741,501	3.287D–12
11111	9/2(9)	4,763,533	3.851D–12
11111	9/2(10)	4,765,468	6.056D–12
11102	7/2(17)	4,796,126	5.114D–12
11102	5/2(25)	4,800,923	3.569D–12
11120	1/2(18)	4,806,237	1.314D–12
11111	7/2(18)	4,812,307	2.040D–12
11111	9/2(11)	4,819,224	4.369D–12
11120	3/2(25)	4,819,916	2.045D–12
11102	5/2(26)	4,822,713	3.217D–12
11111	7/2(19)	4,827,332	3.842D–12
11111	3/2(26)	4,830,163	2.077D–12
11111	7/2(20)	4,836,292	3.005D–12
11111	5/2(27)	4,845,862	4.034D–12
11111	3/2(27)	4,851,252	2.798D–12
11102	9/2(12)	4,855,318	4.785D–12
11102	7/2(21)	4,863,603	4.350D–12
11111	5/2(28)	4,863,952	3.072D–12
11111	3/2(28)	4,869,947	2.369D–12
11111	5/2(29)	4,886,662	2.211D–12
11111	3/2(29)	4,896,370	2.550D–12
11111	5/2(30)	4,905,561	2.718D–12
11111	1/2(19)	4,917,193	1.593D–12
11102	7/2(22)	4,917,222	2.626D–12
11120	3/2(30)	4,919,289	1.792D–12
11102	1/2(20)	4,924,538	2.426D–12
11120	3/2(31)	4,933,565	1.740D–12
11111	7/2(23)	4,934,059	2.111D–12
11111	5/2(31)	4,935,855	3.122D–12
11111	9/2(13)	4,941,603	3.153D–12
11111	9/2(14)	4,947,947	2.876D–12
11120	5/2(32)	4,949,079	1.913D–12
11111	7/2(24)	4,953,352	2.312D–12
11120	5/2(33)	4,958,130	1.504D–12
11120	3/2(32)	4,958,358	2.268D–12
11111	1/2(21)	4,968,815	2.447D–12
11102	9/2(15)	4,972,959	3.750D–12
11111	3/2(33)	4,988,268	2.177D–12
11111	5/2(34)	4,990,961	1.908D–12
11120	1/2(22)	5,003,945	1.135D–12
11111	7/2(25)	5,006,281	1.760D–12
11111	3/2(34)	5,007,787	1.972D–12
11111	5/2(35)	5,008,619	1.695D–12
11102	9/2(16)	5,020,992	4.734D–12

(continued on next page)

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
01310	1/2(23)	5,021,054	1.761D–12
11102	7/2(27)	5,036,393	4.821D–12
11111	1/2(24)	5,047,597	1.920D–12
01310	7/2(28)	5,058,037	2.356D–12
11102	3/2(35)	5,058,219	2.412D–12
11102	5/2(36)	5,059,979	2.573D–12
11102	9/2(17)	5,061,552	2.064D–12
11111	5/2(37)	5,067,834	1.652D–12
11102	3/2(36)	5,071,691	3.097D–12
11102	1/2(25)	5,077,328	1.658D–12
11111	3/2(37)	5,085,779	1.704D–12
01310	7/2(29)	5,098,676	2.003D–12
11102	3/2(38)	5,098,749	1.756D–12
11111	9/2(18)	5,107,421	2.233D–12
11111	5/2(38)	5,115,109	2.140D–12
11102	7/2(30)	5,128,906	1.794D–12
11111	5/2(40)	5,131,365	1.342D–12
11102	5/2(39)	5,136,023	2.474D–12
11102	1/2(26)	5,136,827	1.610D–12
11111	7/2(31)	5,144,993	1.831D–12
11102	5/2(41)	5,148,353	2.666D–12
11102	9/2(19)	5,150,454	2.299D–12
11102	3/2(39)	5,156,727	1.694D–12
01310	3/2(40)	5,167,937	1.496D–12
01310	5/2(42)	5,173,124	1.724D–12
11111	3/2(41)	5,174,876	1.297D–12
11102	7/2(32)	5,180,732	2.417D–12
10220	1/2(27)	5,186,894	1.597D–12
11102	3/2(42)	5,215,237	2.158D–12
11102	5/2(43)	5,215,744	1.980D–12
11102	5/2(44)	5,221,029	1.863D–12
10220	1/2(28)	5,231,241	1.152D–12
10220	7/2(33)	5,239,738	1.723D–12
10211	9/2(20)	5,245,219	2.470D–12
01310	5/2(45)	5,246,176	1.463D–12
01301	9/2(21)	5,247,205	2.443D–12
11102	7/2(34)	5,249,836	1.563D–12
10220	5/2(46)	5,251,385	1.628D–12
10220	3/2(43)	5,256,421	1.157D–12
11102	3/2(44)	5,260,678	1.833D–12
11102	1/2(29)	5,262,002	2.091D–12
01310	1/2(30)	5,285,459	9.808D–13
11102	3/2(45)	5,288,407	1.813D–12
01301	7/2(35)	5,290,322	1.701D–12
20030	3/2(46)	5,301,888	9.444D–13
10211	5/2(47)	5,304,405	1.495D–12
01310	5/2(48)	5,310,903	1.437D–12
11102	3/2(47)	5,324,261	1.237D–12
10211	7/2(36)	5,338,084	1.621D–12
02201	3/2(48)	5,340,255	1.187D–12
01301	5/2(49)	5,344,200	1.485D–12
10220	9/2(22)	5,346,784	2.102D–12
10220	7/2(37)	5,358,755	1.468D–12
01301	5/2(50)	5,363,475	1.341D–12
11102	1/2(31)	5,366,144	1.509D–12
10211	9/2(23)	5,366,737	2.299D–12
10211	3/2(49)	5,399,865	1.869D–12
10220	5/2(51)	5,404,963	1.263D–12
10211	7/2(38)	5,406,566	1.873D–12
10211	9/2(24)	5,418,184	4.685D–12
10202	5/2(52)	5,440,537	1.823D–12
20021	3/2(50)	5,457,309	1.232D–12
20021	5/2(53)	5,459,117	1.095D–12
10211	1/2(32)	5,472,289	1.281D–12
20021	3/2(51)	5,478,800	1.252D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
20012	3/2(52)	5,494,241	1.254D–12
20021	9/2(25)	5,499,100	1.141D–12
20021	7/2(39)	5,499,155	1.168D–12
20021	1/2(34)	5,504,191	9.237D–13
20012	1/2(33)	5,505,740	1.178D–12
02120	3/2(35)*	5,513,006	7.917D–12
10202	3/2(53)	5,514,248	1.407D–12
20012	7/2(40)	5,519,077	1.488D–12
10202	5/2(54)	5,520,819	1.548D–12
01301	1/2(35)	5,524,691	1.107D–12
10211	5/2(55)	5,537,352	1.585D–12
10211	7/2(41)	5,542,256	1.611D–12
10220	3/2(54)	5,547,714	1.064D–12
10211	5/2(56)	5,554,079	1.182D–12
02120	5/2(32)*	5,559,271	4.949D–12
10202	7/2(42)	5,573,659	1.662D–12
02120	7/2(24)*	5,579,421	4.437D–12
02120	1/2(23)*	5,582,831	3.930D–12
10211	9/2(26)	5,584,781	2.273D–12
10220	3/2(55)	5,592,612	1.167D–12
10211	5/2(57)	5,592,928	1.257D–12
10220	7/2(43)	5,600,358	1.176D–12
10202	9/2(27)	5,604,237	2.347D–12
10220	5/2(58)	5,610,060	1.200D–12
10220	1/2(36)	5,614,651	8.362D–13
10220	3/2(56)	5,624,643	1.195D–12
20012	9/2(28)	5,625,597	1.689D–12
20012	5/2(59)	5,629,267	1.216D–12
20003	3/2(57)	5,637,616	1.746D–12
20012	7/2(44)	5,639,170	1.248D–12
10211	9/2(29)	5,643,678	2.281D–12
10202	7/2(45)	5,660,463	2.279D–12
10220	5/2(60)	5,666,994	9.192D–13
02120	3/2(36)*	5,667,681	4.096D–12
10211	5/2(61)	5,678,742	1.308D–12
10202	7/2(46)	5,685,027	1.486D–12
02111	9/2(12)*	5,686,996	6.870D–12
10211	9/2(30)	5,693,909	1.418D–12
02111	7/2(25)*	5,702,648	5.900D–12
10211	5/2(62)	5,703,621	1.329D–12
10202	3/2(58)	5,708,135	1.708D–12
10211	3/2(59)	5,709,800	1.094D–12
20012	1/2(37)	5,711,341	9.480D–13
10211	7/2(47)	5,715,004	1.060D–12
10211	3/2(60)	5,715,224	1.224D–12
10202	5/2(63)	5,724,933	2.481D–12
10211	1/2(38)	5,728,710	1.048D–12
02111	1/2(24)*	5,729,700	6.115D–12
02111	5/2(33)*	5,737,358	5.260D–12
10202	7/2(48)	5,742,228	1.217D–12
10211	5/2(64)	5,747,772	1.543D–12
02111	3/2(37)*	5,752,861	3.750D–12
10211	5/2(65)	5,754,592	1.056D–12
10211	3/2(61)	5,756,413	1.208D–12
02111	11/2(4)*	5,758,349	7.984D–12
10202	1/2(39)	5,763,734	1.371D–12
02111	5/2(34)*	5,766,105	4.699D–12
10211	7/2(49)	5,778,183	1.436D–12
10220	3/2(62)	5,778,558	7.743D–13
10211	7/2(26)*	5,782,871	4.237D–12
11030	3/2(38)*	5,790,886	3.082D–12
10211	9/2(31)	5,792,373	2.444D–12
10211	7/2(50)	5,803,689	1.333D–12
10202	5/2(66)	5,804,255	1.259D–12
20012	3/2(63)	5,808,185	1.163D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
20003	9/2(32)	5,813,888	1.322D–12
10211	5/2(67)	5,815,066	9.793D–13
02111	7/2(27)*	5,832,824	3.759D–12
10211	9/2(33)	5,840,236	1.351D–12
10202	5/2(68)	5,840,254	1.176D–12
02111	3/2(39)*	5,842,165	4.152D–12
10202	3/2(64)	5,844,234	1.074D–12
11030	5/2(35)*	5,844,722	3.073D–12
10211	1/2(40)	5,850,462	9.443D–13
10202	7/2(51)	5,852,994	1.987D–12
02111	5/2(36)*	5,861,905	3.503D–12
10202	3/2(65)	5,864,496	1.334D–12
02111	9/2(13)*	5,871,065	4.843D–12
10211	5/2(69)	5,877,965	1.042D–12
10202	9/2(34)	5,885,880	2.297D–12
10202	1/2(41)	5,888,742	2.172D–12
10202	7/2(52)	5,891,800	1.355D–12
10211	3/2(66)	5,894,680	1.055D–12
10211	5/2(70)	5,904,355	9.262D–13
10202	3/2(67)	5,907,753	1.054D–12
02111	3/2(41)*	5,929,569	3.134D–12
11021	7/2(28)*	5,932,916	3.719D–12
02102	5/2(38)*	5,933,718	3.728D–12
10211	7/2(53)	5,933,774	9.644D–13
11021	1/2(25)*	5,934,038	3.109D–12
11021	5/2(37)*	5,935,970	3.262D–12
11021	3/2(40)*	5,936,611	3.402D–12
02102	9/2(14)*	5,946,492	4.430D–12
02102	1/2(26)*	5,955,248	2.793D–12
02102	11/2(5)*	5,956,682	6.832D–12
10211	3/2(68)	5,959,064	8.805D–13
20003	5/2(71)	5,962,148	1.236D–12
11021	9/2(15)*	5,976,876	4.636D–12
10202	1/2(42)	5,977,544	1.340D–12
10202	7/2(54)	5,978,702	1.012D–12
02102	7/2(29)*	5,988,249	3.793D–12
10202	5/2(72)	5,989,138	1.110D–12
02111	5/2(39)*	5,994,935	3.246D–12
11030	1/2(27)*	5,994,978	1.849D–12
11030	3/2(42)*	6,017,241	1.323D–12
10211	1/2(43)	6,026,341	7.142D–13
01220	1/2(28)*	6,027,628	2.331D–12
11021	11/2(6)*	6,029,353	5.884D–12
11021	7/2(30)*	6,029,947	3.829D–12
11021	3/2(43)*	6,038,510	3.101D–12
11021	5/2(40)*	6,039,669	3.114D–12
10202	3/2(69)	6,052,446	1.154D–12
02102	7/2(31)*	6,052,448	3.615D–12
02102	1/2(29)*	6,054,255	3.055D–12
11021	9/2(16)*	6,059,204	5.226D–12
10202	3/2(70)	6,064,970	1.054D–12
10202	5/2(73)	6,065,399	1.031D–12
11012	5/2(41)*	6,103,830	2.970D–12
11012	7/2(32)*	6,104,888	2.788D–12
11021	5/2(42)*	6,115,532	1.749D–12
00410	3/2(71)	6,119,731	6.860D–13
02102	5/2(43)*	6,122,521	3.037D–12
02102	3/2(44)*	6,130,379	3.248D–12
11012	9/2(17)*	6,149,156	4.372D–12
11021	3/2(45)*	6,152,766	2.069D–12
00401	5/2(74)	6,154,173	8.983D–13
11021	7/2(33)*	6,158,007	2.826D–12
11012	11/2(7)*	6,163,508	1.007D–11
02102	3/2(46)*	6,165,321	2.993D–12
01211	5/2(44)*	6,176,091	2.800D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
11012	9/2(18)*	6,176,310	3.902D–12
11012	1/2(30)*	6,180,744	2.688D–12
11012	5/2(45)*	6,181,341	2.622D–12
02102	3/2(47)*	6,186,050	2.195D–12
01211	7/2(34)*	6,187,615	2.693D–12
11021	9/2(19)*	6,189,325	1.876D–12
10202	1/2(44)	6,201,905	8.493D–13
02102	3/2(48)*	6,204,982	2.639D–12
11021	7/2(35)*	6,210,763	1.674D–12
11021	1/2(31)*	6,212,811	1.775D–12
11012	3/2(49)*	6,222,890	2.199D–12
11012	5/2(46)*	6,223,710	2.966D–12
01220	5/2(47)*	6,230,713	2.928D–12
11021	3/2(50)*	6,238,897	1.404D–12
01220	7/2(36)*	6,240,320	2.332D–12
11012	11/2(8)*	6,250,288	6.486D–12
01220	1/2(32)*	6,251,394	1.422D–12
01220	5/2(48)*	6,251,535	1.611D–12
01220	7/2(37)*	6,256,148	2.246D–12
11012	5/2(49)*	6,262,553	2.357D–12
11012	9/2(20)*	6,265,090	2.953D–12
11021	7/2(38)*	6,268,056	2.200D–12
01220	9/2(21)*	6,269,671	2.594D–12
01220	3/2(51)*	6,277,021	1.815D–12
01220	5/2(50)*	6,287,511	1.943D–12
11021	3/2(52)*	6,294,392	2.102D–12
11021	11/2(9)*	6,301,099	5.152D–12
01211	1/2(33)*	6,321,297	2.618D–12
01211	9/2(22)*	6,323,523	2.590D–12
11021	7/2(39)*	6,326,520	2.373D–12
01211	5/2(51)*	6,329,963	2.207D–12
01211	11/2(10)*	6,330,162	5.150D–12
01220	5/2(52)*	6,334,356	2.119D–12
11012	7/2(40)*	6,341,501	2.497D–12
11003	9/2(23)*	6,342,080	3.391D–12
01211	3/2(53)*	6,342,260	2.788D–12
01211	9/2(24)*	6,355,373	2.794D–12
11012	7/2(41)*	6,358,671	1.893D–12
11012	5/2(53)*	6,363,752	2.184D–12
11012	7/2(42)*	6,376,702	1.728D–12
11012	3/2(54)*	6,379,939	1.518D–12
11012	9/2(25)*	6,386,090	2.771D–12
11012	5/2(54)*	6,397,385	1.697D–12
01202	3/2(55)*	6,398,783	2.010D–12
01220	1/2(34)*	6,401,220	1.243D–12
11012	7/2(43)*	6,405,436	2.271D–12
11012	7/2(44)*	6,408,458	2.578D–12
11012	3/2(56)*	6,410,831	1.968D–12
01202	9/2(26)*	6,413,820	2.711D–12
11003	1/2(35)*	6,416,358	1.648D–12
01220	5/2(56)*	6,416,426	1.808D–12
11012	5/2(55)*	6,419,040	1.779D–12
11012	7/2(45)*	6,422,823	1.751D–12
11003	11/2(11)*	6,423,828	6.283D–12
11012	3/2(57)*	6,426,107	1.347D–12
01211	11/2(12)*	6,427,802	5.681D–12
11012	9/2(27)*	6,432,943	2.633D–12
11003	3/2(58)*	6,439,212	2.096D–12
11003	5/2(57)*	6,447,608	1.928D–12
11012	1/2(36)*	6,450,897	1.731D–12
01211	7/2(46)*	6,452,161	1.902D–12
11012	5/2(58)*	6,456,796	1.761D–12
01211	5/2(59)*	6,460,779	2.087D–12
01211	3/2(59)*	6,463,717	1.536D–12

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Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
11012	3/2(60)*	6,475,084	1.582D–12
01211	5/2(60)*	6,475,500	1.994D–12
01202	11/2(13)*	6,478,178	3.312D–12
11003	5/2(61)*	6,485,170	2.211D–12
01220	7/2(47)*	6,486,317	1.345D–12
01202	3/2(61)*	6,489,521	1.823D–12
01211	1/2(37)*	6,497,392	1.769D–12
01202	9/2(28)*	6,503,416	2.147D–12
01220	5/2(62)*	6,506,612	1.480D–12
11012	3/2(62)*	6,509,270	1.670D–12
01211	7/2(48)*	6,512,439	1.934D–12
01211	9/2(29)*	6,521,449	2.522D–12
01211	11/2(14)*	6,525,863	2.363D–12
11003	5/2(63)*	6,530,115	1.900D–12
01211	1/2(38)*	6,532,384	1.796D–12
01211	3/2(63)*	6,539,092	1.665D–12
11003	7/2(49)*	6,539,418	2.254D–12
01211	3/2(64)*	6,541,030	2.112D–12
01211	7/2(50)*	6,549,473	1.735D–12
01211	9/2(30)*	6,554,224	2.199D–12
11012	5/2(64)*	6,567,636	1.431D–12
01211	9/2(31)*	6,573,125	3.275D–12
01211	1/2(40)*	6,573,415	1.333D–12
10130	3/2(65)*	6,574,910	1.174D–12
01211	3/2(66)*	6,580,606	1.222D–12
10130	1/2(39)*	6,580,948	9.978D–13
10130	5/2(65)*	6,584,576	1.416D–12
11012	5/2(66)*	6,587,140	1.370D–12
01220	3/2(67)*	6,595,228	1.564D–12
11003	1/2(41)*	6,595,452	1.762D–12
10112	11/2(15)*	6,595,567	6.756D–12
01202	7/2(52)*	6,598,468	1.340D–12
10121	7/2(51)*	6,599,519	1.304D–12
10112	9/2(32)*	6,601,221	1.998D–12
01220	1/2(42)*	6,609,968	1.413D–12
01202	7/2(53)*	6,611,391	1.806D–12
01202	7/2(54)*	6,615,333	1.692D–12
01211	5/2(67)*	6,619,233	1.525D–12
01202	9/2(33)*	6,630,880	2.433D–12
10130	7/2(55)*	6,639,899	1.506D–12
01211	5/2(69)*	6,652,136	1.290D–12
10121	5/2(68)*	6,653,534	1.332D–12
01211	3/2(68)*	6,655,076	1.605D–12
01202	11/2(16)*	6,662,212	4.309D–12
10130	7/2(56)*	6,662,366	1.274D–12
11003	5/2(70)*	6,669,157	1.507D–12
11003	3/2(69)*	6,674,306	1.347D–12
11012	1/2(43)*	6,677,831	1.207D–12
01202	7/2(57)*	6,681,733	1.654D–12
01211	5/2(71)*	6,689,749	1.542D–12
01202	3/2(70)*	6,690,378	1.825D–12
10121	9/2(34)*	6,692,168	3.370D–12
01202	9/2(35)*	6,693,770	1.874D–12
10121	3/2(71)*	6,705,884	1.284D–12
01202	5/2(72)*	6,709,893	1.830D–12
01202	9/2(36)*	6,710,749	2.095D–12
01202	3/2(72)*	6,713,078	1.753D–12
01202	5/2(73)*	6,715,121	1.603D–12
01211	7/2(58)*	6,715,777	1.973D–12
01211	1/2(44)*	6,719,491	1.309D–12
10121	5/2(74)*	6,733,969	1.518D–12
01211	3/2(73)*	6,737,026	1.334D–12
10121	1/2(45)*	6,738,584	1.006D–12
01202	9/2(37)*	6,741,502	3.620D–12
01202	7/2(59)*	6,748,473	1.478D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
11003	7/2(60)*	6,759,825	1.405D–12
01202	5/2(75)*	6,764,876	1.591D–12
10121	1/2(46)*	6,769,871	9.996D–13
10121	3/2(74)*	6,770,801	1.100D–12
01202	5/2(76)*	6,772,288	1.573D–12
10112	9/2(38)*	6,785,086	1.642D–12
01202	7/2(61)*	6,785,107	1.658D–12
10121	5/2(77)*	6,789,703	1.335D–12
10130	3/2(75)*	6,794,954	1.340D–12
10121	11/2(17)*	6,798,329	4.317D–12
01202	1/2(47)*	6,799,435	1.361D–12
10112	7/2(62)*	6,800,879	1.516D–12
01202	3/2(76)*	6,805,113	1.359D–12
10121	7/2(63)*	6,809,809	1.286D–12
10130	5/2(78)*	6,815,254	1.395D–12
01211	3/2(77)*	6,816,782	1.140D–12
10121	7/2(64)*	6,826,849	1.260D–12
02030	3/2(72)*	6,832,589	7.563D–12
10130	5/2(79)*	6,833,047	1.244D–12
01202	5/2(80)*	6,834,134	1.378D–12
10121	11/2(18)*	6,851,609	3.766D–12
10121	3/2(78)*	6,854,204	1.151D–12
10121	7/2(65)*	6,858,703	1.126D–12
01202	3/2(79)*	6,858,826	1.334D–12
10112	5/2(81)*	6,867,681	1.381D–12
01202	3/2(80)*	6,870,568	1.197D–12
10112	5/2(82)*	6,872,210	1.253D–12
10112	9/2(41)*	6,887,507	2.194D–12
10103	7/2(67)*	6,899,263	1.576D–12
10112	11/2(19)*	6,900,598	5.615D–12
10112	7/2(66)*	6,901,864	1.797D–12
01202	5/2(84)*	6,905,599	1.296D–12
10112	3/2(81)*	6,905,686	1.331D–12
10112	5/2(83)*	6,908,644	1.318D–12
10130	3/2(82)*	6,922,394	1.104D–12
10121	9/2(42)*	6,924,676	2.703D–12
10121	5/2(85)*	6,926,366	1.229D–12
10121	11/2(20)*	6,927,311	3.972D–12
10121	7/2(68)*	6,929,752	1.420D–12
10130	5/2(86)*	6,934,974	1.020D–12
10120	3/2(83)*	6,935,509	1.207D–12
11003	7/2(69)*	6,946,073	1.218D–12
11003	3/2(84)*	6,952,671	1.141D–12
11012	5/2(87)*	6,957,670	1.239D–12
01202	1/2(50)*	6,958,226	1.312D–12
01211	9/2(43)*	6,958,998	2.008D–12
01202	3/2(85)*	6,971,548	9.514D–13
02021	5/2(75)	6,972,556	6.118D–12
10112	7/2(70)*	6,974,339	1.372D–12
10103	1/2(51)*	6,980,596	2.543D–12
10112	11/2(21)*	6,981,255	4.223D–12
01202	5/2(88)*	6,981,300	1.013D–12
10121	9/2(44)*	6,993,226	1.378D–12
01202	3/2(86)*	6,995,134	9.147D–13
10121	11/2(22)*	6,997,649	1.835D–12
10121	7/2(71)*	7,001,959	1.436D–12
10121	1/2(52)*	7,009,425	1.239D–12
10112	9/2(45)*	7,010,117	1.575D–12
10112	5/2(89)*	7,014,692	1.627D–12
10121	7/2(72)*	7,020,643	1.320D–12
10112	1/2(53)*	7,022,222	1.140D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
10112	11/2(23)*	7,027,275	2.387D–12
10121	7/2(73)*	7,028,115	1.387D–12
02021	3/2(73)	7,029,638	5.290D–12
10103	5/2(90)*	7,034,290	1.672D–12
10121	3/2(87)*	7,035,816	9.273D–13
00311	7/2(74)*	7,039,374	1.335D–12
10121	9/2(46)*	7,039,416	1.564D–12
10112	11/2(24)*	7,047,330	3.115D–12
10103	5/2(91)*	7,047,602	1.549D–12
02021	7/2(55)	7,049,481	5.222D–12
02021	1/2(45)	7,057,085	5.363D–12
10121	3/2(88)*	7,058,843	1.058D–12
10103	9/2(47)*	7,060,845	1.755D–12
10121	5/2(92)*	7,067,617	1.134D–12
10121	1/2(54)*	7,067,809	9.973D–13
02021	9/2(35)	7,080,030	6.134D–12
10112	3/2(89)*	7,081,185	1.255D–12
10121	5/2(94)*	7,081,576	1.015D–12
00311	5/2(93)*	7,081,698	1.142D–12
10103	9/2(48)*	7,093,074	1.976D–12
10112	3/2(90)*	7,098,630	1.147D–12
10121	7/2(76)*	7,100,120	1.041D–12
10121	5/2(95)*	7,103,568	1.136D–12
10112	7/2(75)*	7,107,323	1.860D–12
00311	9/2(49)*	7,107,708	1.883D–12
10121	3/2(91)*	7,118,781	9.950D–13
10112	1/2(55)*	7,127,492	1.703D–12
10112	5/2(96)*	7,133,316	1.127D–12
10112	7/2(77)*	7,137,909	1.290D–12
10121	1/2(56)*	7,138,630	9.471D–13
10112	3/2(92)*	7,141,748	1.345D–12
10112	11/2(25)*	7,151,061	3.472D–12
10112	7/2(78)*	7,154,454	1.144D–12
10121	1/2(57)*	7,155,000	9.933D–13
10112	5/2(97)*	7,156,431	8.554D–13
10112	3/2(93)*	7,166,502	9.387D–13
10121	7/2(79)*	7,171,196	1.296D–12
10103	5/2(98)*	7,172,823	1.481D–12
02021	5/2(76)	7,175,928	4.207D–12
10103	9/2(50)*	7,177,604	1.886D–12
00302	7/2(80)*	7,187,826	1.449D–12
10103	11/2(26)*	7,188,067	2.873D–12
02012	7/2(56)	7,189,105	5.263D–12
10103	7/2(81)*	7,193,901	1.078D–12
10112	3/2(94)*	7,195,979	1.146D–12
00320	1/2(58)*	7,204,785	7.864D–13
10112	9/2(51)*	7,208,152	1.115D–12
10103	5/2(99)*	7,211,040	1.260D–12
10103	3/2(95)*	7,212,952	1.138D–12
10112	7/2(82)*	7,219,398	1.130D–12
02012	9/2(36)	7,223,454	5.897D–12
10103	5/2(100)*	7,225,371	1.211D–12
10112	9/2(52)*	7,226,819	1.697D–12
10103	3/2(96)*	7,238,608	1.316D–12
10112	3/2(97)*	7,238,788	8.601D–13
00311	5/2(101)*	7,240,529	9.263D–13
10112	7/2(83)*	7,242,119	9.437D–13
02012	3/2(74)	7,242,959	4.288D–12
00311	1/2(59)*	7,247,842	8.249D–13
10112	5/2(102)*	7,251,956	1.078D–12
10121	1/2(60)*	7,255,238	1.013D–12
02012	1/2(46)	7,258,919	4.849D–12
10121	3/2(98)*	7,261,645	9.902D–13
10103	9/2(53)*	7,266,245	1.412D–12
10112	5/2(103)*	7,279,707	9.451D–13

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
10112	1/2(61)*	7,282,906	9.670D–13
10103	3/2(99)*	7,285,124	1.175D–12
10112	9/2(54)*	7,285,526	1.381D–12
10112	3/2(100)*	7,288,106	9.600D–13
10112	7/2(84)*	7,288,563	1.179D–12
00311	7/2(85)*	7,291,009	1.009D–12
00311	11/2(27)*	7,295,532	1.496D–12
02012	5/2(77)	7,298,251	4.444D–12
00320	7/2(86)*	7,307,429	9.766D–13
10112	5/2(104)*	7,310,628	1.129D–12
10112	5/2(105)*	7,312,866	9.633D–13
10112	3/2(101)*	7,314,173	1.045D–12
00311	7/2(87)*	7,317,052	9.671D–13
00302	11/2(28)*	7,327,504	4.484D–12
02012	5/2(78)	7,332,307	3.960D–12
00302	5/2(106)*	7,349,819	9.122D–13
10103	9/2(55)*	7,350,492	1.028D–12
10112	1/2(62)*	7,355,686	9.988D–13
02012	7/2(57)	7,356,589	3.971D–12
00302	3/2(102)*	7,358,857	1.114D–12
10112	5/2(107)*	7,359,212	1.029D–12
10103	7/2(88)*	7,364,884	1.282D–12
00311	7/2(89)*	7,370,232	1.003D–12
10112	5/2(108)*	7,386,132	9.758D–13
10112	3/2(104)*	7,390,150	8.292D–13
10103	3/2(103)*	7,391,892	9.872D–13
00311	9/2(56)*	7,396,385	1.557D–12
10103	5/2(109)*	7,405,143	1.084D–12
01130	1/2(47)	7,417,606	1.749D–12
10103	7/2(90)*	7,418,887	9.947D–13
02003	9/2(37)	7,418,939	5.303D–12
00302	9/2(57)*	7,420,855	1.651D–12
10121	1/2(63)*	7,423,160	1.212D–12
10121	5/2(110)*	7,424,443	8.869D–13
02003	3/2(75)	7,429,629	3.040D–12
10112	7/2(91)*	7,436,104	1.010D–12
01130	3/2(76)	7,446,233	2.084D–12
00320	3/2(105)*	7,450,658	6.906D–13
01130	5/2(79)	7,465,517	1.954D–12
10112	1/2(65)*	7,467,022	8.611D–13
10103	5/2(111)*	7,469,491	1.046D–12
00311	3/2(106)*	7,469,581	8.228D–13
00302	1/2(64)*	7,469,686	1.068D–12
01130	7/2(58)	7,475,672	2.207D–12
10103	7/2(92)*	7,496,711	9.839D–13
01130	7/2(59)	7,497,862	2.875D–12
01121	9/2(38)	7,498,779	3.467D–12
01121	5/2(80)	7,503,460	2.963D–12
00302	3/2(107)*	7,510,131	9.730D–13
01121	3/2(77)	7,513,032	2.761D–12
10103	5/2(112)*	7,522,855	9.059D–13
02012	3/2(78)	7,534,309	3.403D–12
01121	1/2(48)	7,549,512	2.085D–12
01121	3/2(79)	7,559,954	2.114D–12
00311	3/2(108)*	7,561,517	7.636D–13
00302	7/2(93)*	7,564,152	9.841D–13
01130	1/2(49)	7,570,458	1.428D–12
02003	5/2(82)	7,583,227	2.746D–12
02003	5/2(81)	7,584,153	2.539D–12
00302	5/2(113)*	7,584,722	7.666D–13
01121	7/2(60)	7,588,157	2.470D–12
00302	3/2(109)*	7,592,480	9.509D–13
01103	1/2(66)*	7,601,682	9.595D–13
01121	9/2(39)	7,602,481	3.471D–12

(continued on next page)

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
01130	3/2(80)	7,622,561	1.353D–12
00302	5/2(114)*	7,635,656	7.649D–13
01112	7/2(61)	7,642,189	2.681D–12
01130	5/2(83)	7,645,721	1.207D–12
01121	9/2(40)	7,653,673	3.008D–12
01121	7/2(62)	7,670,237	2.240D–12
01112	1/2(50)	7,674,997	2.113D–12
00311	1/2(67)*	7,675,529	6.247D–13
01130	5/2(84)	7,684,087	1.865D–12
01112	3/2(81)	7,688,392	2.049D–12
01121	7/2(63)	7,694,082	1.973D–12
01121	9/2(41)	7,694,191	2.945D–12
01112	5/2(85)	7,695,085	2.816D–12
00302	3/2(110)*	7,701,197	8.410D–13
01112	3/2(82)	7,714,716	2.503D–12
01121	7/2(64)	7,715,389	1.951D–12
01112	9/2(42)	7,718,344	3.085D–12
01121	5/2(86)	7,722,492	1.608D–12
01121	3/2(83)	7,740,002	2.168D–12
01130	3/2(84)	7,741,449	1.761D–12
01121	1/2(51)	7,743,978	1.653D–12
01112	7/2(65)	7,749,713	2.279D–12
01112	5/2(87)	7,755,690	2.583D–12
01112	5/2(88)	7,760,275	2.055D–12
01112	7/2(66)	7,767,874	2.266D–12
01121	9/2(43)	7,768,494	5.051D–12
01112	9/2(44)	7,772,108	2.811D–12
01121	5/2(89)	7,774,077	1.832D–12
01112	9/2(45)	7,800,635	3.164D–12
01121	1/2(52)	7,804,580	1.373D–12
01121	5/2(90)	7,804,760	1.304D–12
01121	7/2(67)	7,806,361	2.186D–12
01121	3/2(85)	7,807,235	1.357D–12
01121	7/2(68)	7,811,999	1.513D–12
01121	3/2(86)	7,837,388	1.675D–12
01112	5/2(91)	7,845,154	1.912D–12
01121	7/2(69)	7,846,313	1.925D–12
01121	7/2(70)	7,862,029	1.946D–12
01112	9/2(46)	7,863,205	3.403D–12
01121	5/2(92)	7,864,143	1.568D–12
01112	3/2(87)	7,874,473	1.510D–12
01112	5/2(93)	7,874,513	1.362D–12
01103	1/2(53)	7,878,094	2.752D–12
01112	9/2(47)	7,878,992	2.102D–12
01112	3/2(88)	7,882,710	1.595D–12
01112	7/2(71)	7,892,921	2.174D–12
01112	3/2(89)	7,894,886	2.037D–12
01121	5/2(94)	7,895,330	1.668D–12
01121	1/2(54)	7,902,634	1.211D–12
01112	9/2(48)	7,903,592	2.342D–12
01112	5/2(95)	7,910,509	1.832D–12
01112	7/2(72)	7,912,155	1.784D–12
01112	5/2(96)	7,918,982	1.773D–12
01121	3/2(90)	7,923,180	1.453D–12
01112	7/2(73)	7,928,205	1.397D–12
01112	9/2(49)	7,929,868	2.042D–12
01103	5/2(97)	7,943,311	1.764D–12
01112	9/2(50)	7,949,254	3.065D–12
01112	1/2(55)	7,956,984	1.894D–12
01121	3/2(91)	7,957,746	1.545D–12
01121	7/2(74)	7,966,402	1.574D–12
01121	7/2(75)	7,970,198	1.363D–12
01112	3/2(92)	7,971,817	1.293D–12
01112	5/2(98)	7,980,876	2.193D–12
01103	7/2(76)	7,990,315	1.960D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
01112	5/2(99)	7,990,730	1.296D–12
10040	1/2(57)	7,996,426	1.201D–12
10040	1/2(56)	7,997,022	9.145D–13
01112	9/2(51)	8,000,592	3.320D–12
01112	9/2(52)	8,002,907	1.440D–12
01103	3/2(93)	8,007,344	1.734D–12
01121	5/2(100)	8,010,121	1.351D–12
01112	7/2(77)	8,022,635	1.801D–12
01112	3/2(94)	8,024,412	1.713D–12
01112	1/2(58)	8,030,549	1.532D–12
01112	5/2(101)	8,039,535	1.561D–12
01112	7/2(78)	8,046,661	1.855D–12
01112	3/2(96)	8,047,183	1.325D–12
01112	9/2(53)	8,049,000	3.678D–12
01112	7/2(79)	8,052,525	1.861D–12
10031	3/2(95)	8,055,138	1.033D–12
01112	1/2(59)	8,066,620	2.021D–12
01103	7/2(80)	8,079,474	2.007D–12
01103	3/2(97)	8,082,098	1.244D–12
10022	5/2(102)	8,086,566	1.444D–12
10022	5/2(103)	8,096,634	1.419D–12
01103	5/2(104)	8,108,347	1.676D–12
01121	1/2(60)	8,109,055	1.300D–12
01103	3/2(98)	8,110,044	1.916D–12
01112	5/2(105)	8,121,951	1.267D–12
01112	5/2(106)	8,125,600	1.285D–12
10031	9/2(54)	8,137,518	1.288D–12
01112	7/2(83)	8,141,233	1.544D–12
10022	1/2(61)	8,149,041	1.055D–12
01112	9/2(56)	8,154,596	1.587D–12
01112	3/2(101)	8,164,509	1.292D–12
10031	3/2(100)	8,164,866	1.169D–12
01103	5/2(108)	8,171,435	1.695D–12
10031	5/2(107)	8,172,305	1.164D–12
01103	9/2(57)	8,178,157	3.144D–12
01112	1/2(62)	8,182,008	1.130D–12
10031	7/2(84)	8,185,630	1.165D–12
01112	7/2(85)	8,190,639	1.679D–12
01112	5/2(109)	8,197,015	1.523D–12
01112	1/2(63)	8,201,782	1.422D–12
01103	7/2(86)	8,204,891	1.752D–12
01103	3/2(102)	8,214,204	1.394D–12
01112	5/2(110)	8,221,548	1.568D–12
01103	3/2(103)	8,228,407	1.559D–12
01103	5/2(111)	8,235,563	1.596D–12
10022	9/2(58)	8,235,601	1.525D–12
01103	7/2(88)	8,241,130	1.681D–12
10031	7/2(87)	8,248,981	1.235D–12
01103	1/2(64)	8,252,114	1.738D–12
01112	3/2(104)	8,257,324	1.245D–12
10031	7/2(89)	8,266,601	1.122D–12
01103	5/2(112)	8,266,872	1.042D–12
01103	5/2(113)	8,270,636	1.112D–12
01112	5/2(114)	8,273,342	1.296D–12
10022	9/2(59)	8,285,307	1.923D–12
01103	3/2(105)	8,298,775	9.565D–13
10031	1/2(65)	8,313,159	8.898D–13
00212	9/2(60)	8,315,081	1.894D–12
10022	7/2(90)	8,321,979	1.161D–12
10022	5/2(115)	8,329,190	1.180D–12
00212	9/2(61)	8,333,748	1.592D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
10022	3/2(106)	8,338,553	1.085D–12
10022	1/2(66)	8,351,065	1.094D–12
00221	3/2(107)	8,354,095	1.163D–12
10022	5/2(116)	8,362,186	1.045D–12
10022	1/2(67)	8,367,363	9.307D–13
00212	7/2(91)	8,368,013	1.486D–12
10022	3/2(108)	8,374,214	9.467D–13
10022	7/2(92)	8,377,111	1.375D–12
01103	1/2(68)	8,382,361	9.932D–13
01103	3/2(109)	8,393,124	1.408D–12
10022	5/2(117)	8,393,315	1.088D–12
10022	9/2(62)	8,396,141	1.580D–12
10013	9/2(63)	8,401,313	1.598D–12
00212	5/2(118)	8,401,970	1.172D–12
00230	7/2(94)	8,404,900	8.899D–13
10022	7/2(93)	8,405,221	1.104D–12
00230	3/2(110)	8,408,969	9.131D–13
00212	1/2(69)	8,427,979	1.190D–12
10022	5/2(119)	8,433,440	1.011D–12
00221	7/2(95)	8,434,220	1.157D–12
00230	5/2(120)	8,436,593	1.076D–12
00221	9/2(64)	8,446,084	1.792D–12
10031	7/2(96)	8,452,725	1.034D–12
10013	3/2(111)	8,453,645	1.299D–12
00212	9/2(65)	8,458,364	1.601D–12
00203	7/2(97)	8,467,753	1.362D–12
00221	5/2(121)	8,478,151	1.114D–12
10013	3/2(112)	8,478,895	1.078D–12
00212	3/2(113)	8,481,635	1.217D–12
10022	5/2(122)	8,485,755	1.086D–12
10022	9/2(66)	8,494,736	1.624D–12
00221	1/2(70)	8,498,736	1.037D–12
00230	5/2(123)	8,500,391	1.087D–12
00212	7/2(98)	8,502,324	1.126D–12
10022	3/2(114)	8,505,565	8.246D–13
00212	7/2(99)	8,516,556	1.229D–12
10022	5/2(124)	8,517,092	9.433D–13
00212	9/2(67)	8,519,518	1.523D–12
00221	9/2(68)	8,534,007	2.007D–12
10022	7/2(100)	8,535,087	1.361D–12
00221	5/2(125)	8,538,738	1.045D–12
00230	3/2(116)	8,540,091	8.368D–13
00221	7/2(101)	8,542,291	1.142D–12
00203	1/2(71)	8,543,135	1.217D–12
10022	3/2(115)	8,548,565	1.112D–12
10022	5/2(126)	8,560,919	9.443D–13
10013	1/2(72)	8,566,131	1.259D–12
10004	7/2(102)	8,566,928	1.293D–12
00221	3/2(117)	8,567,657	9.564D–13
10013	9/2(69)	8,568,794	1.999D–12
00212	7/2(103)	8,579,557	9.752D–13
00203	3/2(118)	8,587,667	1.050D–12
00212	9/2(70)	8,596,421	1.554D–12
00212	5/2(127)	8,598,611	1.188D–12
10022	5/2(128)	8,607,320	1.071D–12
00212	7/2(104)	8,607,749	1.262D–12
10013	1/2(73)	8,612,340	8.587D–13
10013	5/2(129)	8,612,644	1.179D–12
10004	9/2(71)	8,616,386	1.443D–12
00212	3/2(119)	8,621,697	1.129D–12
10013	5/2(130)	8,630,931	1.120D–12
00221	7/2(105)	8,638,995	1.109D–12
10013	3/2(120)	8,644,085	1.100D–12
00212	3/2(121)	8,653,668	9.690D–13
00221	9/2(72)	8,655,965	1.801D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
00212	5/2(131)	8,656,079	9.706D–13
00212	1/2(74)	8,658,585	1.106D–12
00221	1/2(75)	8,663,535	9.276D–13
00212	7/2(106)	8,664,296	1.096D–12
00221	5/2(132)	8,664,475	8.345D–13
00212	9/2(73)	8,667,864	1.347D–12
10013	3/2(122)	8,671,427	1.112D–12
00221	5/2(133)	8,679,291	9.417D–13
00212	3/2(123)	8,689,867	8.479D–13
00212	9/2(74)	8,700,436	1.466D–12
00221	7/2(108)	8,709,223	9.735D–13
00212	5/2(134)	8,711,222	1.060D–12
00203	7/2(107)	8,711,398	1.270D–12
10004	1/2(76)	8,718,237	1.131D–12
00203	9/2(75)	8,720,848	1.501D–12
00212	3/2(124)	8,722,423	8.972D–13
00230	3/2(110)	8,724,619	9.894D–13
00212	5/2(135)	8,726,830	1.264D–12
00212	7/2(109)	8,744,950	1.169D–12
00203	5/2(136)	8,745,656	1.171D–12
00221	1/2(77)	8,747,149	9.868D–13
00212	9/2(76)	8,760,995	2.113D–12
10013	3/2(125)	8,761,804	9.650D–13
00221	7/2(111)	8,764,604	1.004D–12
00221	1/2(79)	8,773,006	8.131D–13
00203	5/2(138)	8,774,720	9.457D–13
00221	1/2(78)	8,776,675	8.498D–13
00212	5/2(137)	8,778,444	9.680D–13
00212	7/2(112)	8,779,535	9.568D–13
00212	3/2(127)	8,783,100	1.108D–12
00203	3/2(126)	8,783,166	1.153D–12
00203	5/2(139)	8,786,535	1.085D–12
00212	7/2(113)	8,790,168	9.752D–13
01040	1/2(68)*	8,819,630	1.462D–12
10022	9/2(77)	8,819,994	1.451D–12
00212	5/2(140)	8,822,899	1.002D–12
10022	1/2(80)	8,823,515	9.405D–13
00203	9/2(78)	8,827,018	1.236D–12
00221	9/2(79)	8,828,680	9.730D–13
10022	7/2(114)	8,834,538	9.146D–13
00221	10004	8,835,020	1.063D–12
00212	7/2(115)	8,837,831	9.179D–13
00221	3/2(129)	8,852,641	9.378D–13
00203	5/2(141)	8,856,442	1.051D–12
10022	01031	8,876,531	1.982D–12
00212	3/2(130)	8,884,465	9.758D–13
00212	5/2(142)	8,887,717	1.011D–12
10004	9/2(80)	8,895,596	1.368D–12
00221	3/2(111)*	8,898,350	1.947D–12
00212	5/2(143)	8,914,911	8.562D–13
00212	3/2(131)	8,921,461	1.035D–12
00212	7/2(116)	8,937,063	1.021D–12
01031	5/2(115)*	8,940,740	2.141D–12
00212	1/2(81)	8,947,683	8.827D–13
10004	7/2(117)	8,951,480	9.347D–13
00221	3/2(133)	8,956,444	7.702D–13
10013	5/2(144)	8,959,083	1.141D–12
10013	3/2(132)	8,964,349	1.057D–12
01031	7/2(94)*	8,966,086	2.223D–12
00221	5/2(145)	8,967,039	7.517D–13
10013	9/2(58)*	8,968,544	2.532D–12
00203	1/2(82)	8,991,665	9.680D–13
00212	7/2(118)	8,999,050	8.637D–13
10013	3/2(112)*	9,006,760	1.703D–12

(continued on next page)

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
00203	3/2(134)	9,032,534	8.032D–13
01022	7/2(95)*	9,060,788	2.584D–12
01022	1/2(70)*	9,067,443	2.059D–12
01022	9/2(59)*	9,068,466	3.053D–12
01022	5/2(116)*	9,070,811	2.299D–12
00203	5/2(146)	9,075,077	9.777D–13
00212	1/2(83)	9,078,125	8.738D–13
00203	5/2(147)	9,086,793	8.796D–13
01022	11/2(29)*	9,100,479	5.640D–12
01031	5/2(117)*	9,104,366	1.461D–12
01022	3/2(113)*	9,106,435	2.105D–12
00212	1/2(84)	9,106,490	7.827D–13
00212	3/2(135)	9,118,092	7.135D–13
01031	7/2(96)*	9,125,038	1.180D–12
01022	7/2(97)*	9,144,557	2.090D–12
01022	3/2(114)*	9,147,459	1.761D–12
01022	9/2(60)*	9,147,811	3.024D–12
01022	5/2(118)*	9,170,473	1.903D–12
01022	5/2(119)*	9,220,236	1.689D–12
01013	9/2(61)*	9,229,105	2.798D–12
01013	7/2(98)*	9,238,821	2.423D–12
01022	1/2(71)*	9,243,807	1.455D–12
01022	7/2(99)*	9,255,067	1.346D–12
01013	5/2(120)*	9,262,292	1.984D–12
01013	3/2(115)*	9,281,513	1.797D–12
01022	7/2(100)*	9,283,032	1.667D–12
01022	5/2(121)*	9,286,592	1.665D–12
01022	9/2(62)*	9,292,568	2.321D–12
01013	11/2(30)*	9,304,765	6.007D–12
01022	11/2(31)*	9,305,982	4.175D–12
01013	3/2(116)*	9,313,242	1.943D–12
01013	1/2(72)*	9,327,024	2.181D–12
01013	7/2(101)*	9,341,513	1.993D–12
01022	5/2(122)*	9,347,082	1.232D–12
01022	9/2(63)*	9,356,051	3.301D–12
01022	3/2(117)*	9,366,907	1.336D–12
01013	5/2(123)*	9,372,466	2.251D–12
01022	7/2(102)*	9,385,196	1.581D–12
01022	5/2(124)*	9,397,202	1.658D–12
01013	9/2(64)*	9,410,433	2.142D–12
01013	1/2(73)*	9,413,748	1.839D–12
01013	11/2(32)*	9,427,755	3.034D–12
01013	3/2(118)*	9,437,878	1.450D–12
01013	5/2(125)*	9,447,889	1.742D–12
01013	3/2(119)*	9,449,258	1.814D–12
01013	7/2(103)*	9,453,026	1.402D–12
01013	7/2(104)*	9,466,946	2.245D–12
01013	9/2(65)*	9,486,250	3.113D–12
01013	1/2(74)*	9,486,802	1.716D–12
01022	3/2(120)*	9,527,032	1.364D–12
01013	5/2(126)*	9,531,534	1.888D–12
01004	7/2(105)*	9,533,430	2.015D–12
01004	9/2(66)*	9,544,004	3.034D–12
01022	1/2(75)*	9,544,339	1.615D–12
01013	5/2(127)*	9,561,431	1.681D–12
01004	3/2(121)*	9,584,793	1.317D–12
00140	3/2(122)*	9,594,430	8.573D–13
01013	7/2(107)*	9,601,590	1.534D–12
00131	11/2(33)*	9,604,607	3.445D–12
00131	5/2(128)*	9,605,397	8.451D–13
00122	7/2(106)*	9,606,803	1.061D–12
00122	9/2(67)*	9,607,186	1.889D–12
01004	5/2(129)*	9,650,567	1.861D–12
01013	3/2(123)*	9,670,047	1.394D–12
00131	5/2(130)*	9,689,551	1.031D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
00131	3/2(124)*	9,699,714	9.227D–13
00122	7/2(108)*	9,723,586	1.091D–12
00122	3/2(125)*	9,752,843	9.765D–13
00131	11/2(34)*	9,756,355	3.430D–12
00122	1/2(76)*	9,757,699	9.971D–13
00122	5/2(131)*	9,758,854	1.131D–12
00122	9/2(68)*	9,772,304	1.727D–12
00131	7/2(109)*	9,772,459	1.075D–12
00122	11/2(35)*	9,781,818	3.685D–12
00122	9/2(69)*	9,795,892	1.379D–12
00131	1/2(77)*	9,800,639	7.955D–13
01004	1/2(78)*	9,807,948	1.608D–12
00122	5/2(132)*	9,809,988	9.478D–13
00122	11/2(36)*	9,819,381	2.928D–12
00122	9/2(70)*	9,824,610	1.829D–12
00131	7/2(110)*	9,825,790	1.031D–12
00122	5/2(133)*	9,830,774	9.654D–13
00122	7/2(111)*	9,833,565	1.035D–12
00140	3/2(126)*	9,842,443	7.752D–13
00131	9/2(71)*	9,845,067	1.907D–12
00122	9/2(72)*	9,850,265	1.547D–12
00122	3/2(127)*	9,863,716	1.032D–12
00122	7/2(112)*	9,864,189	1.073D–12
00131	1/2(79)*	9,867,599	8.532D–13
00113	3/2(128)*	9,881,023	1.293D–12
00122	5/2(134)*	9,882,219	9.760D–13
00113	7/2(113)*	9,897,455	1.375D–12
00131	5/2(135)*	9,898,936	9.776D–13
00122	3/2(129)*	9,901,819	8.831D–13
00122	11/2(37)*	9,904,083	3.647D–12
00113	9/2(73)*	9,912,493	1.853D–12
00122	5/2(136)*	9,914,113	8.877D–13
00122	11/2(38)*	9,917,641	3.414D–12
00113	7/2(114)*	9,918,047	1.048D–12
00113	9/2(74)*	9,934,422	1.423D–12
00131	7/2(115)*	9,944,577	9.339D–13
00122	5/2(137)*	9,948,022	1.010D–12
00113	11/2(39)*	9,948,062	3.812D–12
00122	7/2(116)*	9,954,880	1.082D–12
00122	3/2(130)*	9,955,053	1.029D–12
00122	5/2(138)*	9,961,343	1.065D–12
00113	3/2(131)*	9,968,841	1.200D–12
00113	1/2(80)*	9,976,292	1.161D–12
00113	1/2(81)*	9,986,198	1.071D–12
00122	9/2(75)*	9,989,807	1.457D–12
00122	7/2(117)*	9,992,206	1.221D–12
00113	9/2(76)*	10,001,518	1.459D–12
00122	5/2(139)*	10,003,166	1.123D–12
00131	3/2(132)*	10,009,013	8.525D–13
00104	11/2(40)*	10,020,394	3.337D–12
00113	7/2(118)*	10,020,600	9.805D–13
00122	7/2(119)*	10,026,129	1.191D–12
00122	3/2(133)*	10,033,686	1.071D–12
00122	5/2(140)*	10,037,356	1.067D–12
00104	9/2(77)*	10,044,397	1.843D–12
00113	5/2(141)*	10,049,574	1.096D–12
00122	3/2(134)*	10,051,470	9.448D–13
00122	1/2(82)*	10,056,653	1.170D–12
00122	7/2(120)*	10,056,792	1.227D–12
00122	5/2(142)*	10,069,458	9.613D–13
00122	1/2(83)*	10,071,488	9.075D–13
00122	3/2(135)*	10,073,273	9.333D–13
00113	9/2(78)*	10,076,923	1.376D–12
00131	5/2(143)*	10,097,015	1.143D–12
00104	7/2(121)*	10,098,822	1.224D–12

Table 10 (continued)

Occ	$J(\text{No})P$	E	$\tau$
00113	5/2(144)*	10,099,582	9.180D–13
00104	9/2(79)*	10,113,342	1.575D–12
00113	11/2(41)*	10,121,269	2.703D–12
00113	11/2(42)*	10,121,692	2.595D–12
00113	5/2(145)*	10,122,359	1.052D–12
00122	7/2(122)*	10,129,478	9.559D–13
00122	9/2(80)*	10,132,061	1.386D–12
00122	3/2(136)*	10,133,110	1.231D–12
00113	1/2(84)*	10,136,620	9.027D–13
00113	3/2(137)*	10,137,122	1.017D–12
00113	7/2(123)*	10,140,112	1.070D–12
00113	5/2(146)*	10,143,957	1.173D–12
00104	7/2(124)*	10,169,982	1.073D–12
00113	5/2(147)*	10,173,450	1.039D–12
00122	1/2(85)*	10,173,633	8.257D–13
00122	3/2(138)*	10,190,832	7.674D–13
00113	11/2(43)*	10,206,310	2.947D–12
00113	5/2(148)*	10,211,493	9.170D–13
00113	7/2(125)*	10,215,759	9.179D–13
00113	3/2(139)*	10,222,553	1.060D–12
00113	9/2(81)*	10,226,283	2.108D–12
00113	7/2(126)*	10,232,215	1.164D–12
00113	9/2(82)*	10,238,408	1.062D–12
00113	5/2(149)*	10,239,676	9.835D–13
00122	1/2(86)*	10,262,020	1.119D–12
00104	3/2(140)*	10,263,958	9.924D–13
00113	7/2(127)*	10,277,900	1.034D–12
00122	5/2(150)*	10,284,980	1.018D–12
00113	7/2(128)*	10,288,615	1.047D–12
00113	9/2(83)*	10,289,643	1.342D–12
00113	3/2(141)*	10,305,476	1.001D–12
00104	1/2(87)*	10,312,765	1.122D–12
00113	5/2(151)*	10,332,120	1.000D–12
00104	3/2(142)*	10,348,113	9.267D–13
00122	7/2(129)*	10,367,979	9.601D–13
00104	3/2(143)*	10,374,800	9.322D–13
00104	5/2(152)*	10,427,347	8.710D–13
00122	3/2(144)*	10,433,672	7.945D–13
00113	5/2(153)*	10,480,088	8.322D–13
00104	3/2(145)*	10,485,203	1.050D–12
00113	1/2(88)*	10,517,667	7.125D–13

Table 11

Transitions with rates higher than  $5 \times 10^{10} \text{ s}^{-1}$  in  $\text{Xe}^{39+}$  (P-like) ions. See page 656 for Explanation of Tables

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
46.834	3/2(11)*	2.276D–12	3/2(1)	1.6211D+11	5.9804D+10
47.107	1/2(22)	1.135D–12	1/2(3)*	3.1750D+11	1.1446D+11
47.238	3/2(30)*	1.090D–12	5/2(6)	2.1542D+11	5.0599D+10
47.330	1/2(27)*	1.849D–12	3/2(12)	2.6796D+11	1.3273D+11
47.413	1/2(20)*	1.505D–12	1/2(4)	2.2785D+11	7.8154D+10
47.526	3/2(41)	1.297D–12	5/2(5)*	2.1291D+11	5.8787D+10
47.775	1/2(21)*	7.940D–13	1/2(5)	2.5405D+11	5.1246D+10
47.843	3/2(42)*	1.323D–12	5/2(11)	4.6633D+11	2.8770D+11
47.854	5/2(32)	1.913D–12	5/2(4)*	1.6394D+11	5.1416D+10
47.910	7/2(15)*	1.404D–12	7/2(1)	2.2260D+11	6.9553D+10
47.981	3/2(10)*	1.336D–12	3/2(1)	7.0637D+11	6.6681D+11
48.012	9/2(25)	1.141D–12	9/2(5)*	2.3962D+11	6.5514D+10
48.111	1/2(17)	1.776D–12	3/2(4)*	2.6956D+11	1.2906D+11
48.156	5/2(24)*	1.627D–12	7/2(2)	5.6821D+11	5.2537D+11
48.210	1/2(32)*	1.422D–12	3/2(14)	3.8579D+11	2.1163D+11
48.212	3/2(31)	1.740D–12	5/2(4)*	1.7726D+11	5.4672D+10
48.246	3/2(13)*	2.729D–12	5/2(1)	1.4355D+11	5.6246D+10
48.295	7/2(38)	1.873D–12	9/2(3)*	1.8156D+11	6.1753D+10
48.396	5/2(83)	1.207D–12	7/2(24)*	3.3047D+11	1.3186D+11
48.441	7/2(42)*	1.728D–12	9/2(4)	2.3442D+11	9.4984D+10
48.525	7/2(17)*	1.578D–12	7/2(2)	3.2304D+11	1.6462D+11
48.540	1/2(30)	9.808D–13	3/2(9)*	2.4163D+11	5.7260D+10
48.547	5/2(34)	1.908D–12	7/2(2)*	2.0076D+11	7.6891D+10
48.611	7/2(73)	1.397D–12	9/2(13)*	2.4279D+11	8.2366D+10
48.618	7/2(38)*	2.200D–12	7/2(7)	1.7648D+11	6.8512D+10
48.620	9/2(10)*	1.742D–12	7/2(3)	2.0382D+11	7.2375D+10
48.630	5/2(37)	1.652D–12	7/2(3)*	3.0622D+11	1.5493D+11
48.656	3/2(16)*	1.446D–12	5/2(2)	4.5470D+11	2.9902D+11
48.665	1/2(36)*	1.731D–12	3/2(16)	2.5506D+11	1.1262D+11
48.666	3/2(28)*	1.390D–12	5/2(6)	2.2086D+11	6.7816D+10
48.670	1/2(7)	2.036D–12	3/2(2)*	4.4775D+11	4.0818D+11
48.766	1/2(18)	1.314D–12	3/2(5)*	5.4072D+11	3.8408D+11
48.778	3/2(5)	1.250D–12	3/2(1)*	7.9743D+11	7.9466D+11
48.815	1/2(3)	1.777D–12	3/2(1)*	5.6057D+11	5.5838D+11
48.825	5/2(42)*	1.749D–12	7/2(6)	3.8527D+11	2.5960D+11
48.827	3/2(50)*	1.404D–12	5/2(13)	3.4755D+11	1.6959D+11
48.861	3/2(22)	2.357D–12	5/2(2)*	1.6957D+11	6.7759D+10
48.899	3/2(9)	1.474D–12	3/2(2)*	4.1170D+11	2.4977D+11
48.900	7/2(96)*	1.180D–12	9/2(35)	4.0182D+11	1.9052D+11
48.945	3/2(45)*	2.069D–12	5/2(12)	2.1470D+11	9.5393D+10
48.955	5/2(47)	1.495D–12	7/2(5)*	2.9974D+11	1.3433D+11
48.983	7/2(35)*	1.674D–12	9/2(3)	4.0515D+11	2.7479D+11
48.996	3/2(29)	2.550D–12	5/2(3)*	1.7536D+11	7.8408D+10
49.005	1/2(6)*	1.897D–12	3/2(1)	5.0181D+11	4.7772D+11
49.012	5/2(48)*	1.611D–12	7/2(7)	3.3962D+11	1.8584D+11
49.057	3/2(26)*	8.525D–13	5/2(5)	5.3897D+11	2.4765D+11
49.062	7/2(18)	2.040D–12	9/2(1)*	3.8135D+11	2.9670D+11
49.065	1/2(25)	1.658D–12	1/2(4)*	2.1595D+11	7.7303D+10
49.072	5/2(8)	1.825D–12	3/2(2)*	1.8121D+11	5.9934D+10
49.096	3/2(57)*	1.347D–12	5/2(15)	1.9567D+11	5.1587D+10
49.107	1/2(6)	4.958D–12	3/2(2)*	1.9717D+11	1.9273D+11
49.113	7/2(7)*	2.626D–12	5/2(1)	3.3676D+11	2.9786D+11
49.150	3/2(117)*	1.336D–12	5/2(78)	2.2752D+11	6.9149D+10
49.162	7/2(103)*	1.402D–12	9/2(37)	3.3902D+11	1.6116D+11
49.204	1/2(33)	1.178D–12	3/2(14)*	3.2555D+11	1.2487D+11
49.222	7/2(99)*	1.346D–12	9/2(36)	3.4169D+11	1.5712D+11
49.243	9/2(23)	2.299D–12	9/2(3)*	1.7888D+11	7.3571D+10
49.252	3/2(27)*	1.307D–12	1/2(4)	2.0413D+11	5.4456D+10
49.255	3/2(24)*	1.711D–12	3/2(4)	2.9472D+11	1.4858D+11
49.286	3/2(21)	2.446D–12	5/2(2)*	2.3340D+11	1.3323D+11
49.300	7/2(64)	1.951D–12	9/2(12)*	1.8105D+11	6.3948D+10
49.302	3/2(30)*	1.090D–12	5/2(7)	2.3055D+11	5.7959D+10
49.325	3/2(30)	1.792D–12	3/2(6)*	1.8812D+11	6.3425D+10
49.346	3/2(54)*	1.518D–12	5/2(14)	2.3320D+11	8.2550D+10

Table 11 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
49.376	1/2(19)	1.593D–12	3/2(6)*	4.5507D+11	3.2994D+11
49.376	5/2(21)	2.311D–12	7/2(1)*	3.8175D+11	3.3671D+11
49.442	1/2(15)	3.777D–12	3/2(4)*	1.6739D+11	1.0584D+11
49.459	5/2(90)	1.304D–12	7/2(26)*	2.0023D+11	5.2283D+10
49.476	7/2(14)	2.853D–12	7/2(1)*	1.9723D+11	1.1100D+11
49.503	9/2(19)*	1.876D–12	9/2(3)	2.8633D+11	1.5377D+11
49.509	5/2(86)	1.608D–12	7/2(25)*	2.1279D+11	7.2798D+10
49.562	3/2(12)*	2.390D–12	5/2(1)	3.5169D+11	2.9555D+11
49.634	1/2(11)*	1.238D–12	3/2(2)	4.5954D+11	2.6144D+11
49.645	5/2(5)	2.069D–12	3/2(1)*	4.6470D+11	4.4682D+11
49.755	5/2(12)*	1.852D–12	5/2(2)	3.6998D+11	2.5357D+11
49.764	3/2(10)	1.997D–12	1/2(1)*	4.7054D+11	4.4219D+11
49.769	1/2(15)*	1.484D–12	3/2(4)	4.4494D+11	2.9372D+11
49.788	5/2(9)*	1.967D–12	5/2(1)	4.6474D+11	4.2481D+11
49.808	7/2(13)	2.737D–12	7/2(1)*	2.3802D+11	1.5505D+11
49.820	5/2(51)	1.263D–12	7/2(7)*	2.6931D+11	9.1621D+10
49.823	7/2(63)	1.973D–12	9/2(12)*	1.6279D+11	5.2295D+10
49.921	9/2(20)	2.470D–12	9/2(2)*	1.4256D+11	5.0194D+10
49.926	7/2(23)	2.111D–12	7/2(2)*	2.6255D+11	1.4548D+11
49.931	5/2(25)*	1.314D–12	5/2(6)	2.2394D+11	6.5874D+10
49.934	3/2(26)*	8.525D–13	3/2(5)	4.7483D+11	1.9222D+11
49.938	5/2(99)	1.296D–12	7/2(29)*	2.6292D+11	8.9572D+10
49.979	1/2(71)*	1.455D–12	3/2(74)	2.7135D+11	1.0711D+11
50.004	7/2(5)	2.511D–12	5/2(1)*	3.9833D+11	3.9832D+11
50.021	7/2(19)*	1.507D–12	7/2(3)	2.7618D+11	1.1498D+11
50.131	7/2(25)	1.760D–12	7/2(3)*	2.6130D+11	1.2017D+11
50.131	5/2(29)	2.211D–12	3/2(6)*	1.5311D+11	5.1834D+10
50.135	3/2(46)	9.444D–13	3/2(10)*	4.8832D+11	2.2518D+11
50.208	7/2(16)*	1.932D–12	5/2(4)	2.9400D+11	1.6704D+11
50.265	9/2(9)	3.851D–12	9/2(1)*	1.8637D+11	1.3375D+11
50.326	1/2(68)*	1.462D–12	3/2(72)	5.4332D+11	4.3158D+11
50.444	3/2(24)*	1.711D–12	5/2(4)	1.7614D+11	5.3071D+10
50.449	5/2(21)*	3.719D–12	5/2(4)	1.4403D+11	7.7149D+10
50.511	1/2(56)	9.145D–13	3/2(42)*	4.6938D+11	2.0148D+11
50.519	3/2(9)	1.474D–12	5/2(1)*	2.2165D+11	7.2393D+10
50.704	5/2(8)	1.825D–12	5/2(1)*	3.6271D+11	2.4012D+11
51.160	3/2(19)	2.914D–12	3/2(4)*	1.5460D+11	6.9645D+10
51.207	9/2(8)	4.661D–12	9/2(1)*	1.5184D+11	1.0746D+11
51.222	1/2(66)	1.094D–12	3/2(55)*	2.2790D+11	5.6825D+10
51.316	3/2(122)*	8.573D–13	5/2(83)	3.4392D+11	1.0140D+11
51.320	9/2(8)*	1.692D–12	9/2(1)	4.7205D+11	3.7695D+11
51.330	9/2(54)	1.288D–12	9/2(19)*	3.2534D+11	1.3630D+11
51.351	5/2(53)	1.095D–12	5/2(12)*	2.4645D+11	6.6510D+10
51.557	3/2(95)	1.033D–12	5/2(42)*	2.9920D+11	9.2466D+10
51.585	5/2(22)*	1.010D–12	5/2(5)	2.3491D+11	5.5725D+10
51.596	11/2(2)*	4.955D–12	9/2(1)	1.8982D+11	1.7855D+11
51.831	7/2(15)*	1.404D–12	5/2(5)	2.8106D+11	1.1088D+11
51.899	1/2(39)*	9.978D–13	3/2(21)	2.6853D+11	7.1952D+10
51.927	3/2(111)*	1.947D–12	5/2(75)	2.4418D+11	1.1607D+11
52.147	5/2(35)*	3.073D–12	5/2(11)	2.0621D+11	1.3068D+11
52.227	3/2(25)*	9.544D–13	1/2(3)	2.9806D+11	8.4790D+10
52.268	3/2(25)*	9.544D–13	3/2(5)	3.2199D+11	9.8953D+10
52.391	3/2(38)*	3.082D–12	3/2(12)	2.5946D+11	2.0747D+11
52.504	1/2(47)	1.749D–12	3/2(35)*	2.8716D+11	1.4419D+11
52.553	1/2(16)*	1.094D–12	1/2(3)	3.4560D+11	1.3064D+11
52.555	5/2(22)*	1.010D–12	3/2(5)	4.1544D+11	1.7428D+11
52.565	1/2(31)*	1.775D–12	3/2(15)	2.5110D+11	1.1193D+11
52.736	7/2(58)	2.207D–12	7/2(24)*	1.7251D+11	6.5689D+10
52.952	9/2(58)*	2.532D–12	9/2(35)	2.0000D+11	1.0126D+11
53.273	3/2(43)	1.157D–12	3/2(12)*	2.1004D+11	5.1066D+10
53.759	5/2(6)*	4.223D–12	3/2(1)	2.1666D+11	1.9822D+11
54.145	1/2(69)*	1.982D–12	3/2(73)	2.3539D+11	1.0982D+11
54.885	1/2(21)*	7.940D–13	1/2(7)	2.6607D+11	5.6212D+10
56.246	5/2(30)*	1.072D–12	7/2(5)	3.7929D+11	1.5420D+11

(continued on next page)

Table 11 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
56.661	1/2(11)	8.581D–12	1/2(2)*	7.9935D+10	5.4827D+10
56.917	1/2(43)	7.142D–13	3/2(30)*	3.4763D+11	8.6305D+10
57.366	7/2(22)*	1.677D–12	9/2(2)	2.6878D+11	1.2119D+11
57.370	1/2(8)	1.467D–12	3/2(3)*	6.7756D+11	6.7351D+11
57.449	7/2(53)	9.644D–13	9/2(10)*	3.5451D+11	1.2120D+11
57.463	1/2(22)	1.135D–12	1/2(6)*	2.5945D+11	7.6429D+10
57.647	9/2(30)	1.418D–12	9/2(8)*	4.0915D+11	2.3743D+11
57.943	3/2(62)	7.743D–13	3/2(26)*	3.4581D+11	9.2595D+10
58.088	3/2(34)*	1.033D–12	5/2(10)	5.7306D+11	3.3919D+11
58.122	1/2(21)*	7.940D–13	3/2(10)	4.1119D+11	1.3425D+11
58.146	1/2(22)*	1.168D–12	3/2(11)	2.2245D+11	5.7818D+10
58.236	5/2(14)*	1.845D–12	7/2(1)	2.6053D+11	1.2521D+11
58.237	5/2(20)*	1.638D–12	7/2(3)	2.9821D+11	1.4567D+11
58.423	7/2(47)	1.060D–12	7/2(17)*	3.4231D+11	1.2421D+11
58.533	7/2(13)*	1.998D–12	9/2(1)	2.3705D+11	1.1230D+11
58.656	5/2(31)*	1.505D–12	5/2(9)	3.8470D+11	2.2271D+11
58.693	5/2(74)	8.983D–13	7/2(23)*	5.1245D+11	2.3590D+11
58.719	3/2(71)	6.860D–13	5/2(30)*	3.1567D+11	6.8358D+10
58.800	1/2(23)*	3.930D–12	3/2(12)	1.3553D+11	7.2193D+10
58.808	3/2(8)	2.333D–12	5/2(1)*	2.9282D+11	2.0003D+11
58.959	3/2(60)	1.224D–12	5/2(24)*	2.7824D+11	9.4794D+10
59.157	5/2(28)*	1.168D–12	5/2(8)	4.0132D+11	1.8818D+11
59.585	7/2(93)*	9.841D–13	9/2(34)	4.6000D+11	2.0823D+11
59.710	7/2(34)	1.563D–12	9/2(6)*	1.8466D+11	5.3296D+10
59.763	7/2(21)*	1.639D–12	7/2(5)	2.1577D+11	7.6304D+10
59.891	3/2(71)	6.860D–13	1/2(21)*	2.8948D+11	5.7487D+10
59.920	7/2(8)*	3.058D–12	5/2(3)	1.3922D+11	5.9261D+10
59.937	5/2(27)*	2.595D–12	7/2(4)	2.5869D+11	1.7367D+11
60.042	1/2(9)*	2.837D–12	3/2(3)	2.4634D+11	1.7215D+11
60.193	1/2(20)*	1.505D–12	1/2(6)	2.2633D+11	7.7115D+10
60.296	1/2(17)*	1.308D–12	3/2(8)	3.1656D+11	1.3108D+11
60.305	7/2(16)	3.287D–12	5/2(6)*	1.8001D+11	1.0652D+11
60.313	1/2(3)*	5.812D–12	3/2(1)	1.4939D+11	1.2972D+11
60.352	5/2(114)*	7.649D–13	7/2(54)	4.2247D+11	1.3652D+11
60.441	3/2(106)*	8.228D–13	5/2(67)	2.4965D+11	5.1281D+10
60.571	5/2(113)*	7.666D–13	7/2(53)	4.0630D+11	1.2656D+11
60.931	3/2(55)	1.167D–12	1/2(16)*	2.7086D+11	8.5631D+10
61.028	9/2(11)*	1.927D–12	9/2(2)	3.5327D+11	2.4048D+11
61.092	1/2(5)	2.497D–12	1/2(1)*	3.4119D+11	2.9066D+11
61.114	5/2(4)*	6.551D–12	3/2(1)	1.2941D+11	1.0972D+11
61.237	7/2(20)*	1.837D–12	7/2(4)	2.5980D+11	1.2397D+11
61.323	3/2(57)	1.746D–12	5/2(23)*	1.9364D+11	6.5472D+10
61.730	9/2(26)	2.273D–12	7/2(16)*	1.8805D+11	8.0395D+10
61.760	3/2(9)*	4.671D–12	3/2(2)	1.3673D+11	8.7326D+10
61.945	5/2(26)*	1.588D–12	3/2(9)	1.8846D+11	5.6394D+10
61.948	5/2(60)	9.192D–13	3/2(26)*	2.4120D+11	5.3472D+10
62.071	3/2(33)*	1.493D–12	3/2(11)	4.6653D+11	3.2496D+11
62.238	7/2(48)	1.217D–12	7/2(19)*	2.5135D+11	7.6867D+10
62.261	3/2(2)	8.130D–12	3/2(1)*	1.0613D+11	9.1564D+10
62.264	1/2(14)*	2.103D–12	3/2(7)	2.3260D+11	1.1376D+11
62.268	7/2(14)*	2.424D–12	7/2(3)	1.9541D+11	9.2562D+10
62.298	1/2(64)*	1.068D–12	3/2(65)	3.4463D+11	1.2683D+11
62.394	5/2(70)	9.262D–13	5/2(28)*	3.2794D+11	9.9605D+10
62.417	5/2(7)	3.735D–12	5/2(1)*	2.0733D+11	1.6057D+11
62.474	7/2(9)*	4.323D–12	7/2(2)	1.2832D+11	7.1186D+10
62.554	5/2(10)	2.782D–12	3/2(3)*	3.5140D+11	3.4352D+11
62.603	1/2(1)	1.272D–11	3/2(1)*	6.7694D+10	5.8273D+10
62.720	3/2(40)	1.496D–12	5/2(14)*	1.8635D+11	5.1933D+10
62.929	11/2(4)*	7.984D–12	9/2(3)	1.0268D+11	8.4165D+10
63.039	1/2(13)	2.823D–12	1/2(3)*	1.6280D+11	7.4826D+10
63.128	3/2(70)	1.054D–12	3/2(33)*	4.6912D+11	2.3200D+11
63.280	1/2(7)*	3.803D–12	1/2(2)	1.6067D+11	9.8172D+10
63.303	7/2(52)	1.355D–12	7/2(21)*	2.8144D+11	1.0733D+11
63.312	1/2(44)	8.493D–13	3/2(34)*	7.8231D+11	5.1979D+11
63.328	5/2(6)	3.688D–12	3/2(2)*	1.8048D+11	1.2012D+11

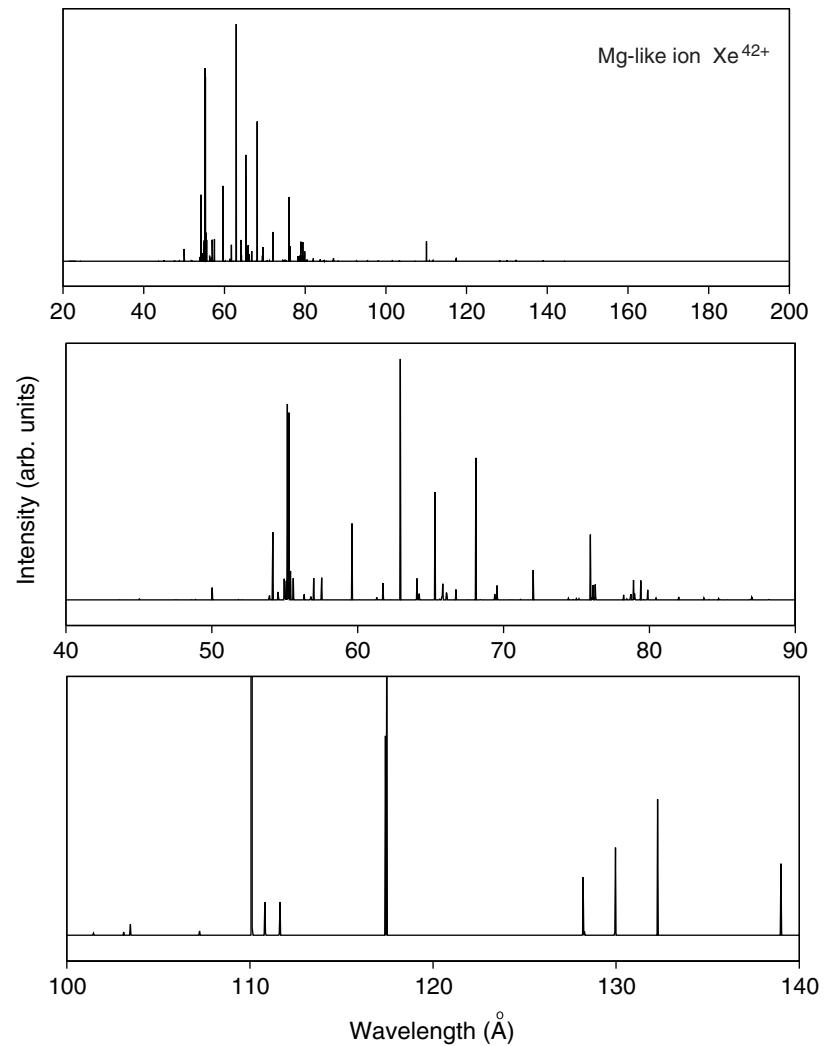
Table 11 (continued)

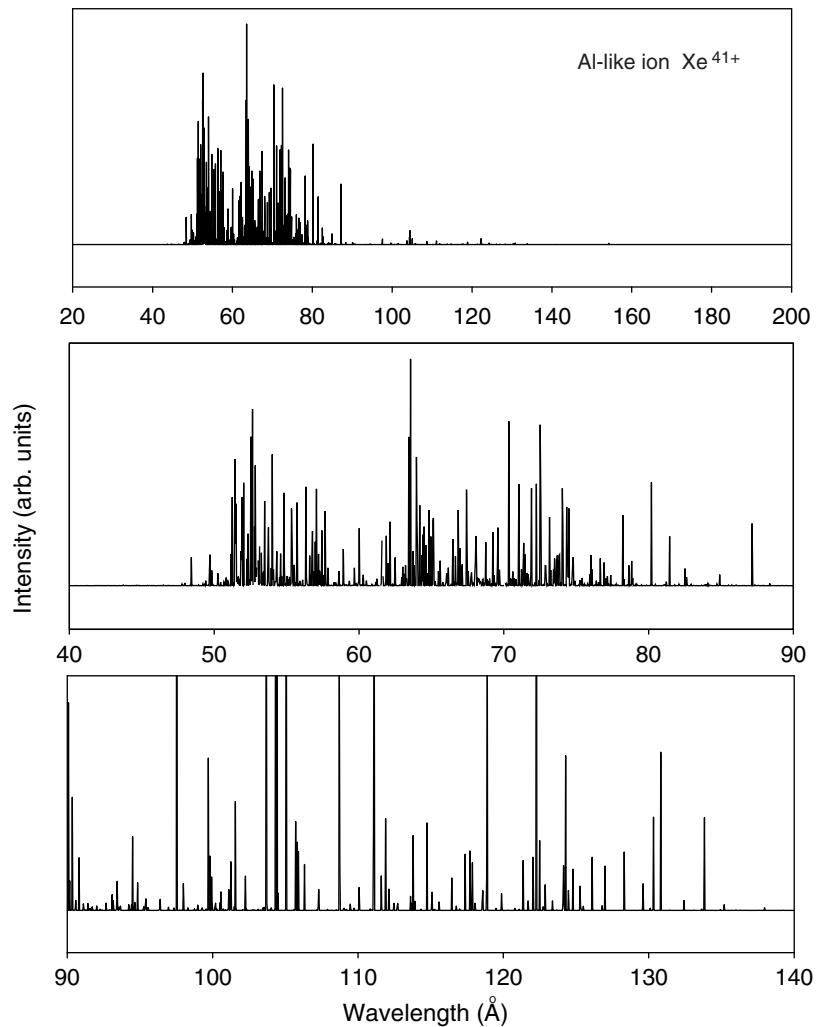
$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
63.345	5/2(73)	1.031D–12	5/2(31)*	3.5038D+11	1.2651D+11
63.382	9/2(21)	2.443D–12	9/2(7)*	1.5655D+11	5.9875D+10
63.388	1/2(10)*	5.779D–12	3/2(4)	1.0366D+11	6.2091D+10
63.409	3/2(34)*	1.033D–12	1/2(8)	3.3811D+11	1.1808D+11
63.439	1/2(43)	7.142D–13	1/2(21)*	4.0791D+11	1.1883D+11
63.477	9/2(19)	2.299D–12	9/2(6)*	2.6791D+11	1.6498D+11
63.494	1/2(13)*	2.831D–12	1/2(4)	1.4338D+11	5.8194D+10
63.599	1/2(65)*	8.611D–13	3/2(66)	4.6803D+11	1.8863D+11
63.600	9/2(53)*	1.412D–12	9/2(30)	3.0874D+11	1.3456D+11
63.681	1/2(12)	6.496D–12	3/2(6)*	8.8851D+10	5.1285D+10
63.795	3/2(11)	3.459D–12	3/2(3)*	2.5871D+11	2.3148D+11
63.922	9/2(6)*	5.151D–12	9/2(1)	1.0865D+11	6.0801D+10
64.107	9/2(5)*	5.452D–12	7/2(1)	1.7606D+11	1.6898D+11
64.108	3/2(6)	7.830D–12	3/2(2)*	1.0243D+11	8.2148D+10
64.196	9/2(43)	5.051D–12	7/2(35)*	1.0550D+11	5.6208D+10
64.276	1/2(67)*	6.247D–13	3/2(71)	6.1744D+11	2.3814D+11
64.290	9/2(25)	1.141D–12	7/2(15)*	2.6259D+11	7.8677D+10
64.299	9/2(32)	1.322D–12	9/2(11)*	4.3070D+11	2.4522D+11
64.338	9/2(10)*	1.742D–12	7/2(5)	2.6043D+11	1.1817D+11
64.399	7/2(57)*	1.654D–12	7/2(30)	1.7698D+11	5.1800D+10
64.535	1/2(31)	1.509D–12	1/2(14)*	3.1131D+11	1.4625D+11
64.537	7/2(23)*	1.669D–12	5/2(10)	4.0261D+11	2.7047D+11
64.548	1/2(66)*	9.595D–13	3/2(69)	5.0973D+11	2.4930D+11
64.567	7/2(85)*	1.009D–12	7/2(48)	2.6150D+11	6.8995D+10
64.640	3/2(110)*	8.410D–13	5/2(74)	5.2809D+11	2.3454D+11
64.707	7/2(49)	1.436D–12	5/2(26)*	3.3903D+11	1.6502D+11
64.754	1/2(22)*	1.168D–12	1/2(8)	5.0930D+11	3.0309D+11
64.766	3/2(19)*	2.340D–12	3/2(6)	1.5152D+11	5.3714D+10
64.796	9/2(35)*	1.874D–12	9/2(19)	2.2682D+11	9.6423D+10
64.965	3/2(68)	8.805D–13	3/2(32)*	2.5631D+11	5.7847D+10
65.038	7/2(77)*	1.290D–12	7/2(43)	1.9823D+11	5.0684D+10
65.058	5/2(19)*	2.265D–12	5/2(7)	2.7000D+11	1.6510D+11
65.079	9/2(55)*	1.028D–12	9/2(32)	5.0171D+11	2.5876D+11
65.120	3/2(101)*	1.045D–12	3/2(62)	2.6598D+11	7.3921D+10
65.139	3/2(108)*	7.636D–13	1/2(43)	3.1765D+11	7.7048D+10
65.216	3/2(135)	7.135D–13	5/2(113)*	3.4815D+11	8.6482D+10
65.217	7/2(6)*	6.921D–12	5/2(3)	9.2820D+10	5.9626D+10
65.226	9/2(7)*	4.853D–12	7/2(3)	1.2470D+11	7.5467D+10
65.244	5/2(48)	1.437D–12	5/2(19)*	2.5780D+11	9.5520D+10
65.285	5/2(74)	8.983D–13	3/2(34)*	3.6801D+11	1.2166D+11
65.366	3/2(48)	1.187D–12	3/2(22)*	2.3197D+11	6.3852D+10
65.438	9/2(21)*	2.594D–12	7/2(16)	1.4856D+11	5.7247D+10
65.466	3/2(109)*	9.509D–13	3/2(70)	3.6318D+11	1.2542D+11
65.496	1/2(35)	1.107D–12	1/2(17)*	3.1076D+11	1.0693D+11
65.507	5/2(29)*	1.667D–12	3/2(11)	1.8199D+11	5.5211D+10
65.553	3/2(23)*	1.671D–12	1/2(5)	3.0231D+11	1.5269D+11
65.626	7/2(12)*	3.107D–12	5/2(6)	1.3956D+11	6.0512D+10
65.675	5/2(147)	8.796D–13	7/2(93)*	2.5821D+11	5.8640D+10
65.704	1/2(82)	9.680D–13	1/2(64)*	3.7493D+11	1.3608D+11
65.819	5/2(113)*	7.666D–13	5/2(73)	2.5609D+11	5.0278D+10
65.917	7/2(53)	9.644D–13	5/2(30)*	2.3895D+11	5.5062D+10
65.937	1/2(83)	8.738D–13	3/2(108)*	2.8485D+11	7.0897D+10
65.966	5/2(114)*	7.649D–13	3/2(71)	2.5609D+11	5.0161D+10
66.048	5/2(20)*	1.638D–12	3/2(8)	2.0096D+11	6.6150D+10
66.067	11/2(28)*	4.484D–12	9/2(32)	1.2103D+11	6.5688D+10
66.202	3/2(106)*	8.228D–13	3/2(68)	3.5273D+11	1.0237D+11
66.228	9/2(3)	9.199D–12	7/2(1)*	7.9807D+10	5.8587D+10
66.243	7/2(3)*	6.580D–12	5/2(2)	1.1190D+11	8.2399D+10
66.311	5/2(132)	8.345D–13	5/2(97)*	3.4077D+11	9.6904D+10
66.582	5/2(2)	1.150D–11	3/2(1)*	8.1226D+10	7.5871D+10
66.613	7/2(14)*	2.424D–12	5/2(7)	1.7174D+11	7.1498D+10
66.698	3/2(110)*	8.410D–13	1/2(44)	3.1987D+11	8.6049D+10
66.731	11/2(22)*	1.835D–12	9/2(25)	3.1919D+11	1.8699D+11
66.784	7/2(3)	8.987D–12	5/2(1)*	1.1127D+11	1.1127D+11

(continued on next page)

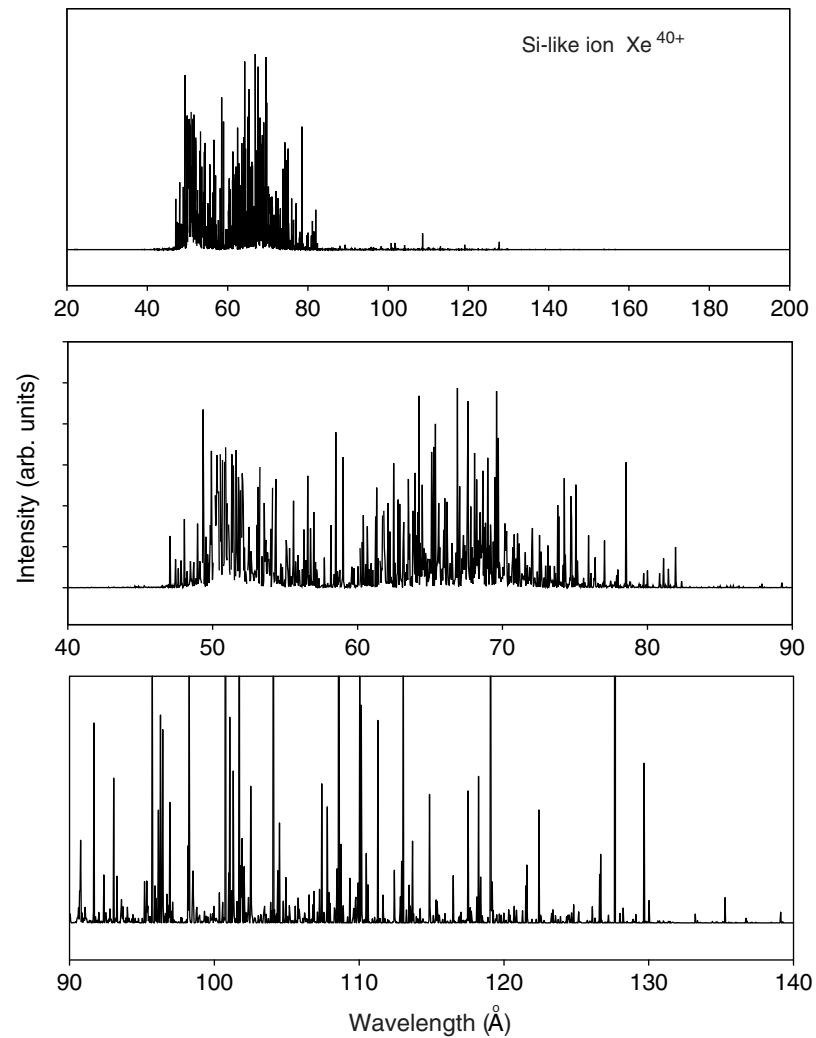
Table 11 (continued)

$\lambda$	Upper	$\tau$	lower	$A$	$A_{\text{br}}$
67.109	9/2(17)	2.064D–12	7/2(10)*	1.7561D+11	6.3659D+10
67.226	3/2(109)	1.408D–12	5/2(84)*	2.7072D+11	1.0318D+11
67.517	5/2(50)	1.341D–12	3/2(23)*	3.0462D+11	1.2444D+11
67.520	5/2(153)*	8.322D–13	7/2(118)	3.7007D+11	1.1397D+11
67.523	7/2(31)	1.831D–12	5/2(16)*	1.8274D+11	6.1142D+10
67.537	1/2(81)	8.827D–13	1/2(65)*	3.4198D+11	1.0323D+11
67.648	9/2(9)*	6.671D–12	7/2(4)	1.1607D+11	8.9874D+10
67.650	9/2(79)	9.730D–13	9/2(55)*	4.8057D+11	2.2470D+11
67.705	9/2(33)	1.351D–12	7/2(22)*	2.0469D+11	5.6615D+10
67.730	1/2(83)	8.738D–13	1/2(66)*	2.8197D+11	6.9471D+10
67.809	9/2(80)	1.368D–12	9/2(57)*	3.0166D+11	1.2446D+11
68.077	3/2(127)	1.108D–12	3/2(101)*	2.8324D+11	8.8911D+10
68.162	11/2(33)*	3.445D–12	9/2(54)	1.5353D+11	8.1209D+10
68.183	3/2(144)*	7.945D–13	5/2(145)	3.2909D+11	8.6043D+10
68.276	5/2(5)*	5.666D–12	3/2(2)	9.8192D+10	5.4633D+10
68.362	3/2(69)	1.154D–12	1/2(22)*	2.2167D+11	5.6720D+10
68.371	9/2(56)*	1.557D–12	7/2(53)	2.0628D+11	6.6251D+10
68.715	11/2(27)*	1.496D–12	9/2(33)	4.0127D+11	2.4088D+11
68.839	3/2(145)*	1.050D–12	3/2(134)	2.2415D+11	5.2747D+10
68.911	5/2(147)	8.796D–13	5/2(114)*	2.7797D+11	6.7960D+10
69.321	3/2(135)	7.135D–13	1/2(67)*	3.5985D+11	9.2393D+10
69.324	11/2(23)*	2.387D–12	9/2(26)	1.4669D+11	5.1358D+10
69.354	1/2(4)*	1.167D–11	1/2(1)	6.5842D+10	5.0599D+10
69.663	9/2(34)	2.297D–12	7/2(23)*	3.3432D+11	2.5678D+11
70.671	11/2(16)*	4.309D–12	9/2(21)	1.1240D+11	5.4437D+10
70.680	1/2(78)*	1.608D–12	3/2(109)	2.2836D+11	8.3865D+10
70.711	7/2(116)	1.021D–12	5/2(112)*	3.2706D+11	1.0918D+11
70.863	1/2(88)*	7.125D–13	1/2(84)	3.4612D+11	8.5361D+10
70.923	7/2(93)*	9.841D–13	5/2(74)	2.9849D+11	8.7679D+10
70.936	9/2(82)*	1.062D–12	9/2(79)	4.5383D+11	2.1865D+11
71.160	1/2(84)	7.827D–13	3/2(110)*	3.4394D+11	9.2593D+10
71.372	9/2(77)	1.451D–12	7/2(90)*	2.4416D+11	8.6486D+10
71.450	1/2(88)*	7.125D–13	3/2(135)	5.7448D+11	2.3516D+11
71.772	5/2(153)*	8.322D–13	5/2(147)	3.2815D+11	8.9617D+10
71.856	3/2(142)*	9.267D–13	3/2(133)	2.6497D+11	6.5063D+10
72.588	11/2(43)*	2.947D–12	9/2(79)	1.4087D+11	5.8481D+10
75.760	11/2(40)*	3.337D–12	9/2(74)	1.3500D+11	6.0807D+10
76.794	11/2(26)*	2.873D–12	9/2(34)	1.6461D+11	7.7856D+10
76.848	11/2(41)*	2.703D–12	9/2(77)	1.8151D+11	8.9067D+10
77.240	11/2(42)*	2.595D–12	9/2(78)	2.1725D+11	1.2245D+11
78.545	11/2(32)*	3.034D–12	9/2(56)	1.4425D+11	6.3122D+10

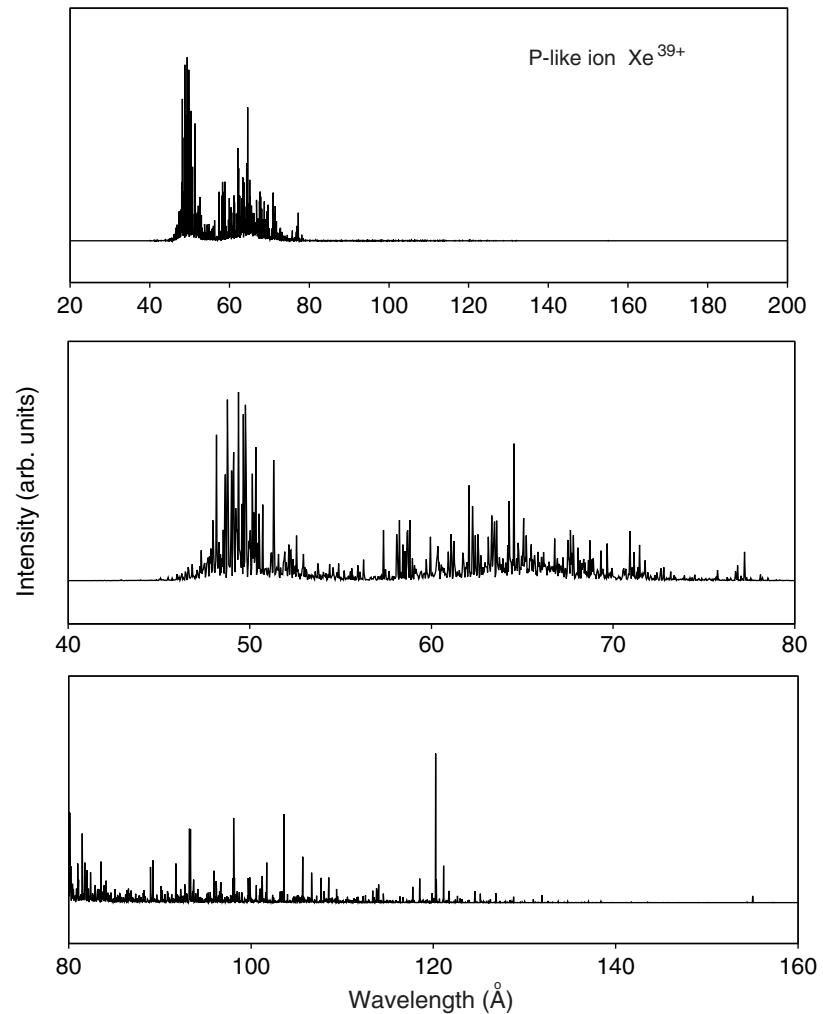
Graph 1. Synthetic spectra of  $\text{Xe}^{42+}$  (Mg-like) ions.



Graph 2. Synthetic spectra of  $\text{Xe}^{41+}$  (Al-like) ions.



Graph 3. Synthetic spectra of  $\text{Xe}^{40+}$  (Si-like) ions.



Graph 4. Synthetic spectra of Xe<sup>39+</sup> (P-like) ions.